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ABSTRACT

This document contains the following papers on graduate, inservice, and faculty use of telecommunications from the SITE (Society for Information Technology & Teacher Education) 2002 conference: (1) "Behind the Scenes: The Process of Implementing a High School Web-Based Course" (Merry Boggs, Holly Patterson-McNeill, Diehl Boggs); (2) "A Study of Technology Teachers' Attitude Toward Videoconference Applied in Education" (Yi-Shian Jong, Hung-Jen Yang, Jui-ChenYu, Shih-Van Chao, Kao-Hau Lo); (3) "Successful Online Discussion and Collaboration: Techniques for Facilitation" (Catherine Collier and Maureen Brown Yoder); (4) "A Study of How Technology Teacher Using Internet Searching Engine for Lesson Plans" (K.H. Lo, Hung-Jen Yang, Rong-Jui Fong, S.F. Chaw, Yi-Shian Jong, Jui-Chen Yu); (5) "Using the Internet To Create Web-Based Activities" (Sheila Offman Gersh); (6) "The Concord eLearning Model for Online Courses" (Sarah Haavind, Cynthia McIntyre, Ray Rose, Alese Smith, Bob Tinker); (7) "Collaborative Efforts through Tele-Mentoring To Increase Technology Effectiveness of Teacher Education" (Seung H. Jin and Ernescia Torbert-Richardson); (8) "Survey on Use of ICT in University Teaching and Learning: Method and Content" (Dean Korosec, Kari Kumpulainen, Thomas Fox McManus); (9) "How Telecommunication Technologies and Moderating Strategies in Online Instruction May Benefit Teacher Education" (Amy S.C. Leh and David Winograd); (10) "Tasting Fine Wine Online for MERLOT: Criteria for Evaluating Multimedia Educational Resources for Learning and Online Teaching" (Barbara B. Levin and Karen Smith-Gratto); (11) "Assessing Distributed Learning: Student Perceptions and Future Directions" (Barbara K. McKenzie, Elizabeth Bennett, Nancy G. Mims); (12) "Course Preparation for Online Learning: What Faculty Should Know" (Barbara K. McKenzie, Michael Waugh, Elizabeth Bennett, Nancy G. Mims); (13) "Faculty Development through Online Courses: Results from an Evaluation of the PT3 Netseminars" (Babette Moeller, Sarah Haavind, Louisa Anderson, Patrick Carrigg); (14) "The Preparation of Alternative Licensure Teachers: Bringing Technology into the Classroom through Distance Education" (John C. Park, April Cleveland, Lynnae Flynn, Brenda Wojnowski, David Haase); (15) "A

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'Distance Scholarship' Model for Teaching and Learning about Technology Supported Assessments" (Jason Ravitz); (16) "Facilitating Teacher Collaboration in On-Line Environments" (Bronwyn Stuckey, John Hedberg, Lori Lockyer); (17) "'Teaching Online Changed My Teaching and My Life': Reflections among Teacher Education Faculty" (Roy Tamashiro); (18) "Collaborative Learning and the Online Learner: Do Those Who Choose Online Delivery Want Collaborative Learning?" (Gary R. Tucker and Michael Blocher); and (19) "Bringing Inservice and Preservice Teachers Together in an Online Learning Community" (Hakan Tuzun and Ozgul Yilmaz). Brief summaries of several conference presentations are also included. Most papers contain references. (MES)

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Telecommunications: Graduate, Inservice & Faculty Use (SITE 2002 Section)

Sue Espinoza. Ed.

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Telecommunications and education – the two are becoming increasingly intertwined in our classrooms and programs at all levels, especially in teacher education programs that are preparing educators to effectively use these technologies in their classrooms. The range of applicable technologies is growing as new ones are emerging and current ones are expanding. The number of schools with Internet-connected computers in libraries, labs, and classrooms continues to grow, providing potential opportunities for students and teachers to participate in global learning communities, and to both retrieve and produce educational resources. Teachers must learn to use and feel comfortable with these technologies, as tools to enhance teaching and learning. So where and how does this take place? The papers in this section demonstrate the wide range of approaches, for both preservice and inservice teachers, in university, field-based, and alternative programs, with delivery 'sites' being online (Internet), videoconferencing, university classrooms, or k-12 schools – either individually or in combination.

Both video-conferencing and online Internet-based courses are described, as are uses of these technologies as integral components of classroom-based courses and/or faculty development. Also discussed are general support and community resources that are not course-connected, and that speak to the concept of lifelong learning. Taken as a whole, these papers provide a snapshot of ways that telecommunications can be used to support and promote effective teaching and learning in today's educational settings. Accounts of both successes and lessons-learned, as well as discussion of methods of assessment of the use and/or effectiveness of various technologies provide guidance for current and future educators.

The Internet may be a veritable goldmine of resources, or it can be an endless maze through which educators wander in a fruitless quest for those resources. Growing numbers of portals and other methods of organizing Internet resources are appearing. Levin and Grotto introduce one such effort – discussing how resources are selected and evaluated for inclusion in a database, and how teachers can become a part of that process. In addition to finding resources, the Internet also provides a forum in which educators can share resources they have created, thus contributing to others in their profession. Repman, Carlson, and Downs describe and provide links to a number of web-based tools that they have found helpful for productivity and instruction. Gersh, also explores web-based tools, discussing those that facilitate "Internetized" lessons and internet-based projects. Specialized applications provide opportunities such as the use of remote scientific instrumentation technology in K-12 and teacher education classrooms, as described by Thakkar, et al. This use of Internet-based activities is basic to the world of telecommunications for classroom instruction, and opportunities to learn more are often available at universities and colleges, as well as at school districts.

E-mail has become almost as common, if not more so, than the postal service it sometimes seems, and is but one of the methods of communication enabled by telecommunications. Several papers explore the communication and community building aspect of the Internet and related tools. Thomeczek examined electronic communication in an undergraduate teacher education course, and compared an e-mail discussion list with a web-based discussion board. Collier and Yoder suggest techniques, based on existing literature, for conducting successful online discussions and collaboration. Tuzun and Yilmaz describe an online learning community of inservice and preservice teachers, communicating via ICQ Active List. Leh and Winograd present some moderating strategies for instructors who are managing online computer conferences. Online communication forums may promote life-long learning, as students continue with these communities after completing their university studies.

Communication is also enhanced by the use of telecommunications to link university classrooms with those in K-12, a practice that has provided unique opportunities for preservice teachers to

observe and interact with schools at a distance. Adcock and Austin discuss their experiences with a preservice observation project that connected the university with public school classrooms via a two-way audio/video conferencing system. Lehman and Razzouk describe a method of observation/interaction using IP-based videoconferencing. Boccia, Fontaine, and Lucas describe a "two-way television teaching, debriefing, and general mentoring" program that led to the development of a CD to help better prepare preservice teachers for observations. Videoconferencing permits students to broaden their perspectives and experiences, as they 'visit' schools, often at a distance.

Online courses also provide experiences 'at a distance,' and studies relating to faculty and students are being conducted to help guide the development of successful educational experiences for all. McKenzie, Waugh, Bennett, and Mims report the findings from their study of what faculty should know about course preparation for online learning. Tucker and Blocher review characteristics of successful distance education students and then describe their study of students and online collaboration. Other papers describe online courses for high school students, and for faculty development.

Integration of technology is one of the 'buzz-words' of the day – teacher preparation programs debate whether to have a stand-alone computer course, or whether to integrate technology throughout the teacher preparation program. What is the best method of introducing preservice teachers to ways to integrate technology into their future classrooms? Redmond and Albion used a newsgroup and a guest 'expert' in communication with preservice teachers to explore that question, and they report the results and explain their choice of methodology. Koro_ec, Kumpulainen, and McManus have also addressed the integration issue – they describe a survey they developed to obtain information about technology integration from faculty and students, on an institution-wide basis.

The papers in this section demonstrate a wide range of uses for telecommunications throughout the educational arena. There are full courses offered via video-conferencing, while others are online over the Internet. There are classroom-based courses, with online or video components. The modes of communication vary, as do the uses to which this technology is put, and the authors provide a view into successful implementations, as well as a discussion of lessons learned and some suggestions for improvement. The body of literature is expanding, as are the technologies. These papers provide a snapshot of ways telecommunications technologies are being used in support of teaching and learning.

Behind the Scenes: The Process of Implementing a High School Web-Based Course

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Abstract: This paper describes how a team of university faculty with knowledge of computer science content, web-based content, and curriculum development content worked together with a high school teacher to implement a high school web-based course.

Introduction

Byun, Hallett, and Essex (2000) found four guiding concepts for online course development. (1.) The instructor needs to have content organized while integrating technology, (2.) The instructor needs to establish procedures for frequent and clear communications, (3.) The instructor needs to collaborate with outside technology experts for support, and (4.) The instructor needs to enculturation him/herself to on-line/web-based instruction.

This paper describes how a team of university faculty with knowledge of computer science content, web-based content, and curriculum development content worked together with a high school teacher to implement a high school web-based course. Through this collaboration TAMUCC teacher educators and a high school teach to implement for an effective implementation of a web-based platform for a high school course. But everything that could possible go wrong did. This paper examines through the two-and a half-month period it took to get this single high school web-based course started.

Behind the Scenes

At the beginning of the summer, this collaborative team delegated responsibilities to prepare for the 2001/02 school year. Mr. Boggs, high school computer science teacher, prepared computer science content. He has previously taught this course, but he prepared by re-organizing materials as to re-format homework, daily work, test, and lesson presentation for web format. Additionally, Mr. Boggs spent June and July at work making sure his computer lab would be ready for students on the first day of school. Drs. Boggs and Patterson-McNeill took care of purchase orders and research preparation.

Simultaneously, we spent time taking WebCT's on-line training. During this time, TAMUCC sponsored WebCT training for faculty only. So, Dr. Boggs took this course while Mr. Boggs took on-line WebCT introduction class. During this time, we decided to purchase epack to use with the web-based course. We felt that this would help transition into a web-base format smoother.

Each of us gave precious summer hours in preparation for beginning our web-based course the first day of school. Little prepared us for the events of August through October. As Mr. Boggs walked into his class with, Visual C++ install on all computers, WebCT, and epack curriculu m on-line waiting for him to point and click or at least we though we were prepared. We first realized that there was trouble when he found that the classroom's network infrastructure had been ripped out and taken to another campus. There was no Internet or network access in his classroom.

Challenges

Without the network infrastructure, the web-based component could not be implemented. Meanwhile, computer science classes started. Students were informed of the upcoming web-based component of the computer science course and what to expect. To prepare students for taking tests and reading their textbook online, students in the proposed web-based class used the library research classroom.

Problems implementing a web-based component at the high school occurred at several levels. Since university and high school budgets were involved, beginning and ending dates of these budgets did not coincide with the actual starting dates of students coming to school. Several weeks were spent trying to purchase epack textbook.

During the summer months, network and Internet capabilities were in place. However, infrastructure fell apart when LAN switches were taken from the high school to the junior high to support their new grading and attendance software. Thus, leaving the high school without needed network equipment to implement a web-based component in the computer science class. The switches were replaced in the last week of September, five and a half weeks after classes had begun.

Finally, Internet access was solved, but some of the computers still do not have printing capability. Then, the Nimda virus struck through the ISP located at the school district central office. We were shut us down for another week. Luckily, this extra week gave us time to finalize the purchase of the epack textbook. Once we were ready with textbooks and Internet access, students needed time to adjust to WebCT and epacks.

Conclusions and Implications

We found that the summer months are not enough for planning and implementing a web-based high school course. A year is needed to plan, organized, and purchase software and materials before beginning the actual course. Also, this year is needed for learning the course delivery system. Mr. Boggs spent hours every weekend in the fall semester trying to master the basic navigation procedures and tools of WebCT. Any teacher implementing this system needs this time to dedicate to conquering the new software. We were naive thinking we could spend only the summer months preparing for this endeavor.

Students were frustrated with the transition from starting the school year with traditional classroom instruction then having to move to the web-based format. Traditional instruction in the history of computing was used to ease the pain of learning logon procedures, accessing epacks, and communication procedures via WebCT. Then, programming instruction began once Mr. Boggs felt all students could use the basic materials. Epacks were great for getting the students started and freeing the teacher from entering all content in WebCT. Epack textbooks were still incomplete because limited examples and program samples are not included. We found that traditional lecture time is still needed to supplement web instruction. Students still need daily teacher help, talk, motivation, and encouragement.

As the first semester ends, teachers, students, and researchers are finally comfortable with the WebCT format. The second semester brings the hope of focusing on C++ programming and measuring student achievement.

References

Byun, P. B. Hallett, K., & Essex, C. (2000). Supporting instructors in the creation of online distance education course: Lessons learned. *Educational Technology 40,* (5) 57-60.

A STUDY OF TECHNOLOGY TEACHERS' ATTITUDE TOWARD VIDEOCONFERENCE APPLIED IN EDUCATION

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Abstract: The purpose of this study was to identify technology teachers' attitude toward videoconference applied in education. Technology teachers are always playing the pioneer role to adopting new teaching technology into their professional works. Their attitude toward certain teaching technology would consider an indicator of implementing technology in education. Videoconferencing technology allows two or more people at different locations to communicate each other at the same time. In addition, it is often possible to share computer applications. It is a rich communication technology which could offers new possibilities for schools, colleges, and libraries including formal instruction, connection with guest speakers and experts, multi-school project collaboration, professional activities. Based on literature review, an investigation tool was design for collecting data of technology teachers' attitude toward videoconference applied in education. There were three attitude categories in the questionnaire. Those categories were advantage of using videoconference, type of using videoconference, and effective using videoconference. According to the result of statistical analysis, the technology teachers' attitude toward videoconference applied in education was concluded and discussed.

Technology teachers' attitude toward videoconferencing was the major issue of this study. There were three dimensions of attitude toward videoconference. Those were advantage, usage type, and

effective strategy focus. Effective use of videoconferencing technology for interactive learning requires practice and planning as well as attention to a few important instructional strategies.

Methodology

An investigation method was applied to this study. Based on literature review, research instrument was layout and designed. Questionnaires were delivered to random sampled technology teachers for collecting data. Technology teachers were asked to mark a Likert scale from "Strongly Disagree" to "Strong Agree". The population of this study was technology-practicing teacher in Taiwan. The total was around 300. The Random sample procedure was applied to distribute 45 , 15%, questionnaires . There were 37 returned. The research instrument divided into two parts, profile information, and 15 Likert-type questions focused in three dimensions. The Alpha reliability coefficient of this instrument was 0.82. The separate Alpha values of each dimension were 0.87, 0.70, and 0.79.

RESULTS & CONCLUSION

The profile information listed as follows:

1. Gender: male (89.2 %) ,female(10.8 %)
2. Age: 20-25 (89.2%) 26-30 (8.1%) 31-35 (2.7%)
3. Teacher/Administrator: Teacher (56.8) Administrator (43.2)

The results based on statistical test results were discussed as following lists.

- Based on the one-sample Test of each Likert-type question, it was concluded that technology teacher agree video-conference providing following advantages:
    1. Heightens Motivation
    2. Improves Communication, Presentation, and Reading Skills
    3. Increases Depth of Learning

  It was concluded that technology teacher agree video-conference could be arrange as following types:
    1. Courses, Lessons, and Tutoring
    2. Virtual Field Trips
    3. Multi-School Projects
    4. Professional Activities
    5. Community Events

  It was concluded that technology teacher agree effectiveness of video-conference based on as following factors:
    1. Focus on Learning
    2. Set Expectations
    3. Provide Supporting Materials
    4. Engage Students with Variety and Interaction
    5. Encourage Dialog
- There existed no attitude difference between gender.
- There existed no attitude difference among different age range.
- There existed no attitude difference between teachers and administrators.

Successful Online Discussion and Collaboration: Techniques for Facilitation

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Abstract: As more and more instructors enter the world of online teaching and learning, a body of knowledge is emerging around the challenge of facilitating online interaction and fostering online collaboration. This paper draws from the literature on asynchronous learning and the authors' own experiences with online discussion and collaborative online projects. We identify a variety of techniques for focusing student dialogue, fostering an online learning community, and promoting successful collaboration. Instructors who are teaching wholly online courses or simply integrating online components into face-to-face classes will benefit from the observations and discussion.

Introduction

Instructors who teach online, whether a fully online class or one that incorporates online components, face the challenge of facilitating online interaction and fostering online collaboration. Drawing from the literature on asynchronous learning and the authors' experiences with online discussion and collaborative online projects, we can identify a variety of techniques for focusing the dialogue, fostering an online learning community, and promoting successful collaboration.

Face-to-face vs. Online Discussion

Face-to-face and online communication are noticeably different for the instructor and the student. Differences arise from the spoken word vs. the written word and asynchronous vs. synchronous communication. There are advantages to asynchronous interaction that instructors can use to their benefit in facilitating online discussion.

In a spoken discussion, the facilitator makes the effort to encourage participation across the class, to acknowledge all contributions without being judgmental, and to avoid having participants interrupt others. This can be done by calling on people whose hands are raised and encouraging non-contributors to participate.

No special skills are required to participate in spoken discussion. Some people participate in face-to-face discussions with confidence. They may be effective and productive but can sometimes be controlling or opinionated. Some people may be introverted or shy in a face-to-face setting and are reluctant to contribute to class discussion. Both problems may require intervention by the instructor to insure equitable, productive discussion.

Typically, verbal contributions are spur of the moment, spontaneous reactions. Tone of voice, accents, and body language help convey a message in face-to-face discussions. Unless someone is taking notes, there is no written record of what is said.

Written discussions differ in important ways. Both the participants and the facilitator have a written record of contributions throughout the discussion and as a reference following the discussion. Taking turns does not involve bidding for the instructor's attention; each student simply writes a contribution when ready. Online discussion contributions tend to be more thoughtful and deliberate. They are often well constructed, and attention is paid to spelling, grammar, and punctuation. Emotion is conveyed with words and sometimes emoticons. Capital letters and punctuation may be used for emphasis.

The facilitator can send private email to non-contributors and can carefully plan interventions. Some problems arise when participants are not coherent writers or become impatient when they have to plan and write their thoughts. On the other hand, introverted or shy people may shine when they can plan what they are going to say and carefully construct an online entry.

For written discussion to be productive and effective, participants must be comfortable with online conferencing and able to navigate within the discussion area. They may need guidelines on writing subject lines for their postings and knowing when to begin a new thread. As with spoken discussion, the instructor may need to intervene occasionally to correct a problem, emphasize a point, or refocus discussion.

Facilitating Effective Online Discussions

With asynchronous interaction in mind, how can the instructor facilitate online discussion? In a face-to-face classroom discussion, the instructor needs to carefully listen to what is being said. Online, the teacher must read the written contributions and decide how and when to intervene. The literature and our experience show that fewer, but carefully constructed, instructor interventions can be effective in promoting thoughtful and thought provoking contributions by students. Effective online facilitation begins with observation of the participants to see what guidance they need from the facilitator. Sometimes this is a private e-mail reminder to an individual student to use meaningful subject lines or to reveal emotion. Often the most help an instructor can provide to the discussion as a whole is to intervene very little, merely asking a probing question or sharing a relevant story that will help refocus the discussion or motivate the participants to think at a deeper level about the topic.

Markel (2001) writes that instructors must be responsive. Feedback has long been recognized as critical to the learning process, and timely feedback is potent. This is especially true in an online course. A student assignment, question, or bid for response can come directly to the instructor via email or as part of a discussion forum posting. Feedback needs to be personal, specific, and timely (within 24 hours). Online students report checking back to see if there is a response. If they are left dangling, they lose a feeling of connection. This is a negative loop that contributes to a lessening of participation in the discussions.

Sarah Haavind emphasizes the responsibilities of a facilitator to deepen the dialogue and focus the learning. Knowing how and when to intervene is critical. Using a variety of voices and tones, the facilitator acts as "guide on the side", develops a rationale for an intervention, and carefully crafts an intervention that targets an obvious tension, an unresolved issue, or a gap in the thinking of the group. (Collison, Elbaum, Haavind, & Tinker 2000)

The best facilitators are flexible, adaptive, proactive, responsive, and resilient. They take into consideration the participants and the interaction, and they adapt their techniques to fit the situation. Sometimes this means encouraging more cooperation and less competition; other times it means emphasizing process over results. The goal is to maintain a balance that will best serve the participants and help them reach their learning goals. (Thiagarajan 1999)

Fostering Online Community

Creating a safe and challenging online community includes requiring participation and monitoring the quantity, frequency, and content of student contributions. Strategies that promote effective discussion include motivating inquiry with thought provoking questions, intervening effectively in group discussions, and supporting individual students. It is important that the instructor *not* be the central focus of the discussion; nor should the instructor be an equal participant; yet the instructor's guidance is crucial. The following techniques place the instructor in a thoughtful, useful role as a facilitator.

1. *Incorporate community-building activities.* In order to develop a comfort level among students, an instructor should not launch a serious discussion without first allowing an online community to develop. Ice breaking activities can be used where there is no right or wrong answer, where humor is welcome, and personal and professional information is encouraged. An instructor can share his or her own background and outside interests as an example. Activities that encourage imagination and creative writing sometimes work well. Student introductions could remain available on a class Web page for the duration of the semester.

2. *Clarify class requirements.* Class requirements should be clear, including the expectations around contributions to discussions. Stating the number and frequency of discussion contributions is not enough. The type of contribution should be described. "I agree", "Me, too." and "No way!" are not sufficient or acceptable. Opinions should be accompanied by a rationale. Responses that answer other participant's questions should provide clear explanations and examples. Participants should be taught how to include illustrative examples in their online postings, including Web links for further reading, images for enhancing a thought, and colored and bold text for emphasis.

3. *Know when not to intervene.* Effective online facilitation begins with the reading of conference contributions to see what guidance students need from the facilitator. Often the most help an instructor can provide is to intervene very little, merely asking a probing question or sharing a relevant story that will help refocus the discussion or motivate the participants to think at a deeper level about the topic.

4. *Privately acknowledge high quality contributions.* Instructors should refrain from publicly praising an individual participant or using one posting as a good example. Instead, the instructor can privately acknowledge how the posting helped to move the dialog in a more thoughtful direction or how it prompted others to participate that had not previously contributed. Lee (1994) explains that students who receive feedback by email are "active producers of meaning," rather than passive recipients of data (p. 152). The feedback is evidence that the instructor has read the student's work and cares enough to provide a personalized critique. Positive feedback from the instructor reinforces a student's accomplishments and encourages further good work.

5. *Address unsatisfactory student involvement.* If a student is not participating, or is contributing in an inappropriate way, the instructor has a responsibility to communicate with them. This should be done privately through e-mail, though sometimes a phone call is necessary. Research has shown that negative comments can result in a more positive reaction when delivered by electronic mail, rather than delivered in person. (Fishman 1999) This may be because the student is less likely to take comments and criticism personally when they are delivered asynchronously without personal contact. (Olaniran, Savage, & Sorenson, 1996)

6. *Remain neutral in heated discussions and debates.* A good facilitator acknowledges the many perspectives that have been voiced, but does not take sides or voice a personal opinion on an issue. The facilitator who voices a personal opinion runs a risk: some students will attempt to please the instructor, possibly for a better grade, by agreeing with the instructor's opinion. In this case, a spirited debate with many viewpoints is curtailed. The instructor's role is to encourage thoughtful discussion, not enter into it as a participant.

7. *Acknowledge different viewpoints, without summarizing.* Many lists of conference guidelines encourage the facilitator to summarize the contributions in order to focus the dialogue. The danger, however, is that the facilitator infuses his or her slant on student opinions and imposes an interpretation of student contributions. Instead, the facilitator should acknowledge that there are a variety of views, citing some general ones, and encouraging further exploration of the issue. A good strategy is to state the importance of respecting other people's opinions and urge everyone to support their views with additional information. Sarah Haavind refers to this as setting a "landscape", rather than summarizing. (Collison et al. 2000)

8. *Encourage student feedback to other students.* Some instructors mandate peer interaction by requiring students to react to postings made by other students. The practice can reinforce the student's desire to participate and encourage thoughtful reflection. A student logging into an online forum may find that other students have commented positively on a posting, or that there are six new messages in a thread that the student initiated. This feedback is both affirming and motivating.

Collaborative Experiences

Collaborative online projects are another aspect of online learning that benefit from careful design, monitoring, and effective instructor intervention. The design of online activities should include attention to logistics (such as grouping students), checkpoints to insure quality and timeliness of student contributions, and options that allow for joint and individual products.

When a significant online assignment is done collaboratively, the stakes are high. Students are unlikely to succeed as collaborators until they have, as Wegerif puts it, crossed the threshold from outsider to insider. (Wegerif 1998) Students may be reluctant to engage in collaborative projects or papers for a variety of reasons. Some have doubts about their ability to contribute and are concerned about pulling down another student's grade. Conversely, they may feel superior to the class and not want their own grades pulled down. The instructor addresses these and similar concerns by encouraging students to know one another well and to value their contributions before having them engage in high-stakes collaborative activities. This process is facilitated by preceding a major collaborative assignment with several smaller collaborations. Each time students are required to work with different classmates and encouraged to think about their current partner(s) as possible collaborators for the major assignment. By the time the major assignment begins, students are well prepared to choose their own partners.

While these community building activities are underway, the instructor assesses individual students' strengths, weaknesses, styles, and skill levels. The instructor can determine which students need prodding to respond in a timely manner, which students need assistance with technical aspects of collaboration, and which students are reluctant to ask for help. In this way, the instructor and students are accustomed to timely, targeted interventions when the major collaborative assignment begins. Andriole (1997) uses the term "choreographing" to describe the careful design of pre-course, mid-course, and end-of-course activities that support successful collaboration. In particular, it is useful to step through the phases of the project, anticipating difficulties, and designing in contingencies to circumvent or respond to problems.

Experience at Lesley University has shown that online students in collaborative projects are likely to work independently and to skip any required exchanges unless these steps are clearly defined and graded. (Collier & Morse 1999) When students receive clear instruction on what material will change hands, and when they know they will be graded on the exchanges, they comply. Hiltz's research bears this out while emphasizing that students are motivated to work hard on assignments when they know other students are reading their work. (Hiltz 1997)

Recent experience at Lesley University suggests that instructors may want to examine the components of major assignments to identify those that need to be done collaboratively and those that could be done independently. In a collaborative writing assignment, for example, Lesley students were given the option to produce individual or joint papers, but they were required to give peer feedback to their partners at several checkpoints during the collaborative assignment. The combination of providing options while requiring and grading peer feedback resulted in higher quality papers and greater student satisfaction.

In summary, techniques that contribute to successful online collaborative projects are the following: through preliminary, small collaborative assignments, encourage students to know one another and value their contributions; establish a climate of intervention early in the course to deal with the problems that will arise during a major collaborative assignment; build in checkpoints and grade those collaborative activities that are essential to the assignment; provide options for individual vs. joint efforts for some components when this will not compromise the goals of the assignment.

More Organizational Techniques

Throughout an online or face-to-face class, there are different types of online discussion that can support course content, stimulate debate, and promote collaboration among students. The following four discussion forums can be incorporated into any course.

1. *Discussion of course content, readings, and debatable topics.* This forum is the most academically oriented of the four and the most closely tied to the course objectives. The discussion is instructor driven, but populated by students in the class. The instructor largely controls the topics and questions, but after the initial input, the instructor can retreat, letting students take the most active roles.

2. *Logistics of course, assignments, and group formation.* A separate discussion area should be available for students to ask questions and discuss the logistics of the class. The instructor may be asked to clarify an assignment, or a student may contribute or request a resource that is useful for completing a project. The formation of groups for collaborative projects could be accomplished in this area.

3. *Technical support.* Sometimes a technical problem poses a barrier for a student trying to complete an assignment. Often another student in the class has the resources and experience to solve the problem. Having problem-solving information available on a public forum can benefit other students who may need the information in the future.

4. *Social interactions.* In this area, opinions on current world events and stories of personal triumphs and tragedies can be shared, along with informal discussion on any topic of interest to the students. The instructor may have little or no involvement in this discussion and does not need to facilitate or monitor. Often instructors "lurk" in this area, reading but not commenting, to get a sense of the culture and community of the class.

In addition to serving specific purposes, each of the four provide valuable feedback for the instructor about students' understanding of the content and students' ability to articulate their thinking.

Conclusion

Online learning is a challenge for instructors. Facilitating online discussion requires monitoring of the quantity, frequency, and content of student contributions. The instructor motivates inquiry with thought provoking questions, timely interventions, and private support for individual students. Facilitating collaborative work requires the establishment of community, timely interventions, checkpoints and grades for required exchanges, and thoughtful options for joint vs. individual products. These techniques can be learned by any instructor to provide a valuable online learning experience.

References

Andriole, S.J. (1997). Requirements-driven ALN course design, development, delivery & evaluation, *Journal of the Asynchronous Learning Network, 1* (2).

Collier, C. & Morse, F. (1999). The internet ate my homework: Experiences with online collaborative writing. Proceedings of Syllabus99, Santa Clara, CA, July 24-27, 1999.

Collison, G., Elbaum. B., Haavind, S., & Tinker, R. (2000). *Facilitating online learning: Effective strategies for moderators.* Madison, WI: Atwood Publishing.

Fishman, B.J. (1999). Characteristics of students related to computer-mediated communications activity. *Journal of Research on Computing in Education 32*(1), 73-77.
Retrieved from http://www.iste.org/jrte/32/1/abstracts/fishman.html

Hiltz, S. R. (1997, August). Impacts of college-level courses via asynchronous learning networks: Some preliminary results *Journal of the Asynchronous Learning Network, 1* (2).

Lee, A. (1994). Electronic mail as a medium for rich communication: An empirical investigation using hermeneutic interpretation. *MIS Quarterly, 18*(2), 143-158.

Markel, S. (2001). Technology and education online discussion forums: It's in the response. Retrieved from http://www.westga.edu/~distance/ojdla/summer42/markel42.html Also from *Online Journal of Distance Learning Administration 4*(2).

Olaniran, B., Savage, G.T., & Sorenson, R.L. (1996). Experimental and experiential approaches to teaching face-to-face and computer-mediated group discussion. *Communication Education 45*(3), 244-259.

Thiagarajan, S. (1999). The secrets of successful facilitators. Retrieved from http://www.thiagi.com/article-secrets.html

Wegerif, R. (1998). The social dimension of asynchronous learning networks, *Journal of the Asynchronous Learning Network, 2* (1).

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A STUDY OF HOW TECHNOLOGY TEACHER USING INTERNET SEARCHING ENGINE FOR LESSON PLANS

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Abstract: The purpose of this study was to identify how technology teacher using Internet searching engine for initiating and updating their lesson plan. An investigation research method was applied for this study. There were two phases in this research. In the first phase, an on line recording system for browsing path, screen images and operating video was setup for technology teachers who were experienced searching engine users. By reviewing recorded data the goals, procedures and functions of using Internet searching engine for lesson plan were drawn. In the second phase, a investigating tool was design based on the result of the first phase. Questionnaires were delivered to random sampled technology teachers for collecting data. The statistical process was followed for analyzing collected data. Conclusion of research problem was drawn from the analysis result. Based on the result of data analysis of both phases, a portal type environment of technology teacher professional searching engine for lesson plans was discussed and suggested.

When a technology teacher edits a lesson plans, he/she often needs much information for his/her lesson plan. However, when he/she wants to search his information in demand on the WWW, he/she just can find information in the shortest time by searching engine besides finding information at known professional webs or relative webs. But each searching engine provides different searching functions and information range. For this reason, it is necessary to build a portal type environment of technology teachers professional searching engine for lesson plans. Before reaching this purpose, we must know how technology teachers using internet searching engine for lesson plans. Therefore, the purpose of this study was to identify how technology teaches using Internet searching engine for initiating and updating their lesson plans.

Methodology

There were two phases in this research. In the first phase ,an online recording system for browsing path ,screen images and operating video was setup for technology teachers who were experienced searching engine users. In the second phase, investigating tools was designed based on the result of the first phase. Questionnaires were delivered to random sampled technology teachers for collecting data. Technology teachers were asked to mark a Likert scale fr[illegible]"Strongly Disagree" to "Strong Agree". The population of this study was technology-practicing teacher in Taiwan. The total was around 300. The Random sample procedure was applied to distribute 45 , 15%, questionnaires. There were 39 returned. The research instrument divided into three parts, profile information, terminology explanations, and 36 Likert-type questions. The Alpha reliability coefficient of this instrument was 0.87.

RESULTS & CONCLUSION

The profile information listed as follows:

1. Gender: male (89.2 %) ,female(10.8 %) .
2. Using computer attitude: 88.9 % of them liked using computer , 11.1% of them were neutral.
3. Learning computer experience: 1~5 years (78.3 %), 6~10 years (19 %), above 15 years (2.7 %).
4. Using computer time a week 0~30 hours(62.2 %),31~60 hours(32.4 %), above 60 hours (5.4 %).
5. Contacting to Internet time : 1~5 years (86.5 %) , 6~10 years(10.5 %),and above 10 years(3 %).
6. Using Internet search-engine time: 1~5 years(94.6 %),6~10 years(5.4 %).
7. Internet instrument accessibility: 2.7 % were hard , 18.9 % were neutral ,40.5 % were easy, 37.8 % were very easy.
8. Self-estimating operating search-engine (scale degree from 1 to 10): scale 5(8.1%),scale 6(5.4%),scale 7(24.3%),scale 8(37.8%),scale 9(16.2%),scale 10(8.1%).

- Based on the one-sample Test of each Likert-type question, it was concluded how technology teacher using search-engine for their lesson plan. They used Internet search-engine in following ways:

  Synonym search; Key-word search; Semantic search; Subjects browsing; Initiating new lesson plan; Editing lesson plan; Contract filtering data; Verifying data; Parallel filtering data; Comparing data.

- There existed no difference between gender among different search-engine operations. The attitude toward computer would be a factor influencing using search-engine in verifying data manner.
- The person with higher level of positive attitude was with higher intention to verify data from search-engine.
- The instrument accessibility factor made no difference among types of search-engine usages.
- The ability of operating search-engine also made no difference among types of search-engine usages.

According to these findings, an environment of technology teacher professional search-engine for lesson plans could be designed to reduce technology teachers searching information time and frequency, help teachers selecting information, and editing lesson plans.

Using the Internet to Create Web-Based Activities

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The "Internet Style of Learning" has provided teachers and students with new ways to approach teaching and learning. Teachers can easily take one of their traditional lessons and turn it into an "Internetized" lesson using resources from the Internet or take a topic they want to teach and create a collaborative inquiry-based Internet project that can be shared with a class in another location, nationally or globally.

Stage One

By going to http://www.epals.com, teachers can search for educators around the globe and create an opportunity for sharing, collaborating, etc. There are so many ways that teachers around the globe are using the Internet to bring the world into the classroom. Examples of projects and collaborations can be found at sites under "projects" at the Web site http://www.schoollink.org/twin

Most traditional lesson plans can be enhanced by adding Internet activities. These activities include research exercises, communications with other students or experts, virtual field trips, publishing, collaboration, interactive activities, or Internet searches. It is always good to have students use the search engines that are designed for students (http://www.yahooligans.com or http://ww.ajkids.com -- Ask Jeeves for Kids). Teachers can learn a lot from each other when they join listservs. You can find out about listservs by going to http://www.liszt.com. Many teachers have already created lessons that include Internet components, so we should take the time to view such lessons.

Some teachers find it better to start with new lessons when they introduce Internet activities into their lessons. They use their traditional lessons as outlines for their new lessons. It can take a long time to create the new lessons. Time has to be spent searching for the right site for the lesson. Once the site has been chosen, the next procedure is to develop some meaningful activities for students to complete when they visit the site. If the students are going to communicate with other students/experts, make sure they understand time zones and realize that they won't get responses immediately. Once students are proficient in using the Internet, they can do scavenger hunts on the Internet to find information. Of course, it's a good idea to try out the lesson before teaching with the Internet. Be aware that there might be technology problems so always have a backup lesson. WebQuests are always a good way to get started with Internet lessons. Go to http://edweb.sdsu.edu/webquest/webquest.html. for great information about WebQuests. You should read "Some thoughts about Webquests" at http://edweb.sdsu.edu/courses/edtec596/about_webquests.html

Once Internetized lessons become the norm for teaching, Internet projects should be the next step. Such projects should include students collaborating with other classes to

exchange data, share writing activities, and create discussions on topics of interest. In addition, mailing lists often post requests for participation in hundreds of Internet projects. There are many commercial project commercial projects available for those who prefer to "buy in" to a packages project.

Stage Two

What is a project? Projects are collaborative, interactive learning activities that allow students and teachers to interact to carry out a research activity that supports the existing curriculum in new and exciting ways. Students use the Internet's research, communications, and publishing tools to get involved in data exchanges, team writing projects, world explorations, and even global shopping. The classroom walls become invisible as students connect to global partners and experts via the Internet. Through such projects, students around the world work together, sharing the experiences, research, and learning resulting from their work.

Ideas for projects come from students and teachers, and projects vary as widely as the people participating in them. Some projects consist of writing assignments, which are then posted to conferences and eventually gathered into a publication. Others consist of art projects, in which students from different schools exchange works of art. Still others provide ways for students to get directly involved in helping to solve problems in other countries.

Projects are usually organized according to the age/grade levels of the participants and by curricular subject matter. Participation is open to either students of all ages, primary/elementary students, or intermediate/secondary students. Subject areas include environmental or natural sciences; social studies, politics, and economics; arts and literature; language-based; and other/interdisciplinary.

Projects have been classified in a variety of ways. I*Earn (http://www.iearn.org), The Global SchoolHouse (http://www.gsn.org), Judi Harris (http://www.esu3.k12.ne.us/institute/harris/Harris-Activity-Structures.html) and Bernie Dodge (http://edweb.sdsu.edu/webquest/webquest.html) have made outstanding contributions to the use of Internet projects. For example, I*EARN has categorized projects as structured, unstructured, and Learning Circles. Judi Harris has done extensive research in the area of Internet projects. As a result, she has classified projects into the following categories; Online Correspondence and Exchanges, Information Gathering, Problem Solving, and Competitions. On Thursday, October 25, 2001, President Bush highlighted the launch of the Friendship Through Education Consortium --is called Friendship Through, a resource network for schools wishing to interact with schools internationally. To learn more about the project or to get involved go to http://www.friendshipthrougheducation.org/.

Getting It Right

Suggested Design Criteria for Internet Projects

Internet project should:

- Focus on getting students to use their minds well; raise real questions and allow students to do authentic work rather than exercises from a workbook;
- Develop instruction around the questions, ideas, and concerns of students;
- Recognize and use learners' purposes for learning; view learning as meaning-making and constructive rather than passive reception and regurgitation of transmitted information;
- Develop active approaches to learning and encourage students to express their ideas and opinions;
- Give students ownership of their learning;
- View teachers and students as co-investigators-- both should seek knowledge and solutions to problems; foster collaborative/cooperative learning and devise activities that help build a sense of community;
- View students as producers of knowledge and publishers of their work
- Provide moments when everyone takes time to reflect on what they have learned;
- Contribute to the understanding of other cultures;
- Strengthen students' literacy and academic skills; and
- Provide ample opportunity to strengthen students' technology and Internet skills.

The Internet can make teaching and learning exciting while encouraging students to become lifelong learners, contributing members of society, and valuable members of the world of work. The research, communications, and publishing skills learned by students through Internet activities are essential for now and in the future. I have been using the Internet for 14 years. I often ask teachers who aren't using the Internet – How are you accessing information? How are you communicating? How are you teaching? Are you, also asking these questions?

The Concord eLearning Model for Online Courses

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Abstract: The Concord Consortium has been designing and implementing netcourses since 1994. In our work with the Virtual High School (www.goVHS.org) and NSF-supported professional development project for mathematics and science teachers enhancing their inquiry pedagogy called INTEC (intec.concord.org), a model of collaborative, online learning emerged that now serves as a standard for effective netcourse design and facilitation. Concord staff have co-written two books on the topic, *Facilitating Online Learning: Effective Strategies for Moderators* (Atwood, 2000) *and Essential Elements: Prepare, Design and Teach Your Online Course* (Atwood, forthcoming). This paper describes the Concord eLearning Model.

Introduction

The netcourses developed and/or offered by The Concord Consortium (www.concord.org) are organized around online student collaboration as the core vehicle for learning. To this end, a *scheduled, asynchronous* format works best. It allows for the deepened focus, extended reflection time and flexibility of "anytime, anywhere" while at the same time fosters learning communities who move together through content and learning dialogues simultaneously on a weekly or bi-weekly schedule. But there is more that makes elearning quality learning. These additional facets are embodied in the following nine key characteristics:

Sound inquiry pedagogy. "The new and more powerful opportunity available to educators today is to use (internet) technologies to help individuals collaboratively construct networked learning communities that will accelerate and augment the community's learning, as well as each individual's learning" (Carroll, 2000). There are many specific design elements in the Concord eLearning Model that contribute to best practices for inquiry teaching including varied smaller group problem-solving activities, explicit objectives matched to qualitative assessments, rubrics for postings that ensure discussions provide embedded evidence of learning, and the effective use of graphics, simulations and visualizations that support exploration and sense-making activities for collaborating learners. Our extensive course standards (http://www.govhs.org/Pages/Main+Office-Course+Evaluations) that incorporate these design elements and sound pedagogical practices should be part of any effective course but are essential in this medium.

On-going Assessment. Continuous assessment is essential in online courses because one cannot be sure whether a high-stakes test would be closely monitored. Rather than taking advantage of quantitative testing options made easy by the electronic medium, our strategy allows the teacher to learn each student's voice and typical approaches to problem-solving thus avoiding the problem of secure monitoring. We find the learning is enriched by this alternative approach. Required discussion postings must contribute more than "I agree" or "I disagree". Additional credit is given for contributions that point others toward productive exploration, coin useful phrases or offer analogies that help others express their thinking and pursue new areas. A rigorous academic experience is ensured by augmenting the learning dialogue as a vehicle for evaluation with unique projects where content is explored in local settings or using additional Internet technologies (creating an original web page of resources for a specific audience, building an electronic portfolio of work, or posting original designs, new problems or findings, music, or other appropriate original work).

Aynchronous collaboration. The core learning strategy in our model uses asynchronous discussions and group problem solving collaborations between students in threaded discussion groups. Compared to synchronous technologies (chats, shared whiteboards, shared applications, audio conferencing, and video conferencing), these discussion groups are less expensive, more thoughtful, and far easier to schedule, particularly across time zones. A typical face-to-face sequence in a mathematics or science course includes a demonstration or modeling by the teacher, lab work or practice problems in class with a group and individualized homework for group review the following day. Online, the demonstration or modeling might be via an online, visual simulation activity (or offline experimentation with simple materials) that students can then explore or play around with to answer questions. The collaborative discussion would then revolve around gif images of interesting or surprising findings, unexpected outcomes or questions about aspects of the content to be learned. Students then help students with the instructor intervening only when others cannot assist. Research shows that this learning environment is inclusive and supportive of students with disabilities (Hsi & Hoadley, 1997).

Expert facilitation. Each course section must be led by a qualified person specifically trained in online facilitation. Leading an online discussion is a skill that must be developed; it is not sufficient to simply assign to online teaching to an excellent face-to-face teacher. Effective strategies in person have unintended effects online that halt rather than seed deepened dialogue (Haavind, 2000, Collison et al, 2000). In addition, many beginners make the mistake of putting themselves in the middle of the conversation by either asking all the questions or

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providing too many of the answers. Alternatively, many stay unintentionally in the way of learning by establishing private email with each member of the group. This quickly overwhelms the facilitator and interferes with student-to-student collaboration. A more effective facilitator moves out of the middle and has strategies for stimulating real student collaboration and guiding the conversation toward important content. The facilitator must monitor all discussions and respond within 24 hours if not sooner to technical or process questions. However, effective online community leaders can avoid interrupting participant collaboration and knowledge co-construction by only intervening to leverage content discussions toward deepened, clear focus on learning objectives (Collison et al, 2000).

Trust creation. Learning through collaboration requires participants to take intellectual risks. It is the responsibility of course designers and instructors to proactively foster a culture of community collaboration. This can happen only when participants are supportive, honest and encourage criticism and clear thinking. Leaving time to know one another is an essential first step in this process. Written expectations about good group processes is also helpful. The facilitator must establish and shape intellectual and emotional norms, model appropriate behavior, and steer harmful input toward higher, learning ground for all. Anonymous polls, role playing, introducing a partner to the group, and a cafe or student lounge thread where non-course topics are discussed, are all techniques we use to build and maintain strong, trusting groups.

Explicit Schedules. Online courses that rely on collaborative discussions must be tightly scheduled so that those participating share similar experiences and insights. We schedule a major topic for each week and usually schedule a set sequence of activity, discussion, and reflection within each week. For instance, if the content of a video is essential for a scheduled discussion, then the schedule must have all participants view the clip before beginning the discussion. While it is not important that all participants view the video simultaneously, it is best if each person views it within the days just prior to the beginning the discussion group. The assignment will then have each participant make an initial entry. Another assignment, within a few days will have participants make responses to comments already posted. The best schedule preserves the "anytime, anywhere" flexibility of online courses while also ensuring that all participants bring similar experience and currency to the discussion.

Limited enrollment. For meaningful online collaborations, the number of participants in an online discussion group needs to be limited. We find that 20-25 is the maximum number in one group for general discussions and that sub-groups with as few as two or three are needed for the intense collaboration required to produce something complex, like a cumulative project. However online discussions need a critical mass, so smaller is not better – and the minimum number of participants for effective online discussion is approximately 15. If the enrollment in a course is larger than 25, independent sections of approximately 20 are formed. When smaller working groups are needed for a specific task, the section is divided into public or private subgroups (depending on whether cross-pollination among groups has valued potential).

Excellent materials. Learning resources of many kinds are needed to provide the content and common experiences needed for effective discussions. To appeal to different styles of learning, we advocate using the widest feasible range of media and activities. We do not attempt to supply all material over the wire: books, media, kits, and labs might require supplies that are mailed or obtained locally. We encourage course authors to engage students in explorations, surveys, creative works, and self-reflection as appropriate. Multiple, short assignments in different styles and media are helpful in preserving course flexibility, reinforcing key concepts, and addressing different learning styles.

Purposeful virtual spaces. For most courses, several conversations are needed, each with different goal. At a minimum, four kinds of conversations are needed: An academic one about the content, and a technical one about the interface keep tech inquiries together and out of content threads. The facilitator only has to answer technical questions once, since others are encoura ged to check the tech thread before asking the same question twice. Also needed is a social conversation thread for the group to meet and greet, de-brief and exchange resources or network. Finally, a weekly or bi-weekly "class meeting" thread is where part icipants can share with the facilitator and peers how it's going, what's working, what's being learned and appreciated about the course and what challenges participants confront as they move through the material. In many courses, multiple content threads, possibly time-limited, might also be needed. The conversations in these threads need to be set up in separate virtual spaces with clear learning goals and supporting rubrics for effective communication and growth (no "I agree/ I disagree"). The facilitator must nurture the appropriate use of each virtual space to keep dialogues clear and focused, and thus ensuring the content thread(s) are more fluid and rich.

These nine characteristics define the Concord eLearning Model, and position it as a major refinement of the more generally implemented scheduled asynchronous, instructor-led model for online instruction.

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Collaborative Efforts through Tele-Mentoring to Increase Technology Effectiveness of Teacher Education

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Abstract: The study examined the technology skills of the pre- and in-service teachers in the teacher education program. The two courses in the teacher education program established a cross discipline partnership creating a mentor/mentee relationship. The data was collected in quantitative and qualitative formats. The quantitative data was collected through technology surveys and online interaction. The qualitative data was gathered by classroom observations, mentoring technology activities, technology journals, electronic portfolios, instructors' notes, qualitative perspective discussions, and semi-structured interviews. This collaborative tele-mentoring activity offered students opportunities to expand use of e-mail in meaningful ways, to explore World Wide Web resources relevant to course topics, and to apply multimedia skills in the creation of electronic presentations and portfolios.

Over the past several decades educational professionals and practitioners on every level have struggled with the issues of how technology can be integrated into curriculums and increase students' technology skills in preparing for the future. Research reveals that core and specialized content professors in teacher education programs may be under-utilizing technology tools (Carlson and Gooden, 1999). According to them, modeling of technology by teacher educators was occurred only for word processing and most technology is underutilized. Therefore, pre-service teachers have little opportunity to see it modeled in their college classroom setting by their university professors. Moreover, Volk and Ming (1999) state the attitudes towards technology students receive is derived from prior experiences in formal education are important factors in their abilities to engage actively in any technological endeavors. Uses of technology in teacher education programs may motivate the pre- or in-service teachers to use it in their own instructional setting and maximize the quality of their research and presentations.

For innovative and motivational uses of technology into teacher education courses, three major goals were addressed in this present study. Those goals were: 1) to model the effective uses of technology for teaching and learning, 2) to develop the appropriate technology skills of the pre- and in-service teachers, and 3) to utilize technology tools to support their learning experiences. The study investigated the following research questions: 1) How does students' access of technology during the course differ in the experimental and control groups? 2) How does students' utilization of technology tools to conduct educational research and class assignments differ in the experimental and control groups? 3) How do the technology self-efficacy beliefs and attitude toward technology of students differ in the experimental and control groups? 4) How does students' expectancy of utilizing technology in future teaching differ in the experimental and control groups?

In the spring semester of academic year 2000, approximately 80 graduate students enrolled in the Child Development and Telecommunications in Education courses participated in this study. The two courses established a cross discipline partnership creating a mentor/mentee relationship. The participants in the Child Development course were divided into two groups which consisted of experimental and control sets. The instructor of the Child Development course encouraged students in experimental group to use technology for the research assignments as well as cooperative learning presentations. Also, the students were assigned to dialogue with mentors through a collaborative listserv maintained by the instructor of the Telecommunications in Education course. On-going support by the mentors was provided to the mentees for their educational

research and learning practice utilizing technology tools. Participants in this collaborative mentoring activity were asked to write personal reflections related to integrating technology into their course work and personal use.

The data was collected in quantitative and qualitative formats. The quantitative data was collected through technology surveys and online interaction. The qualitative data was gathered by classroom observations, mentoring technology activities, technology journals, electronic portfolios, instructors' notes, qualitative perspective discussions, and semi-structured interviews. During the semester, the researchers collected three primary forms of data from the mentors in order to learn how mentors responded via listserv: each mentor's responses to his or her students, interviews midway and at the end of the study, and journals. All forms of data were a regular part of the Telecommunications in Education course. Additionally, the mentees in this study were requested to write a technology journal of integrating technology in their learning or teaching. There was a significant difference between two groups on e-mail access and interaction (Table 1). While the students in experimental group used technology as a research or collaborative tool for their learning, those in control group shown limited uses to ask questions or excuses to the instructor.

	Experimental (n=25)	Control (n=27)
e-mail access	100 % (25)	44% (12)
e-mail interaction	5.76 (144)	3.75 (45)
Contents analysis		
assignments	67% (96)	24% (11)
resources	6% (8)	2% (1)
group works	3% (4)	
problem report	9% (13)	2% (1)
questions	7% (10)	33% (15)
grade	1% (2)	4% (2)
absence/late	1% (2)	13% (6)
Personal notes	3% (4)	13% (6)
other sharing	3% (5)	7% (3)

Table 1. Analysis of e-mail interaction between two groups

This research study revealed progress made in the integration of technology in teacher education courses at this institution. This collaborative tele-mentoring activity offered students opportunities to expand use of e-mail in meaningful ways, to explore World Wide Web resources relevant to course topics, and to apply multimedia skills in the creation of electronic presentations and portfolios. The students in the experimental group expressed positive attitudes toward technology and competency for utilization of technology in classroom teaching. For example one student remarked:

> *When I began your class, I felt a little overwhelmed. I completed my undergraduate degree 10 years ago. I am glad you introduced me to technology. Whether I continue to further my education in education, I will need to be familiar with technology. So when my nephews need to work on the computer using the Internet, e-mail, Words, etc., I can assist them.*

As the result of this study, the participants in the Child Development course increased their proficiency level of technology, web-based research abilities, and analyzing online research materials. On the other hand, the participants in the Telecommunications in Education course linked their skills and knowledge to practical situation and had an opportunity to examine in detail the technology implementation process in the teacher education program.

References

Carlson, R. & Gooden, J. (1999). *Mentoring pre-service teachers for technology skills acquisition.* Association for the Advancement of Computing in Education, Charlottesville, VA. 1313-1318.

Volk , K. S. & Ming, Y. W. (1999). *Gender and technology in Hong Kong: A study of pupils' attitudes toward technology.* International Journal of Technology and Design Education, 9, 57-71.

Survey on Use of ICT in University Teaching and Learning: Method and Content

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Abstract: As part of an on-going European project whose aim is to establish a Center for Distance Education Development, the University of Maribor developed a survey on use of information technology in teaching and learning at our University. In this paper we described the context and development of the questionnaires as well as the process of conducting the survey.
Our goals and purposes of collecting the data included: (a) evaluating the current nature of experiences related to ICT shared by members of staff and students of the University of Maribor, (b) assessing the needs of the University staff in implementing new media in their professional practices (such as developing teaching material in electronic form and establishing new forms of collaboration and dissemination within the University and beyond), (c) giving foundations for developing new skills of teaching and learning in the information society.

Introduction and background

In order to improve the quality of technology in teacher education it is first necessary that we determine the current state of technology integration within the institution. In our case we chose to examine the use of technology by our entire faculty as well as the student body rather than just looking at those in our teacher education programs. The idea was not to investigate on the technology (software and hardware) but to focus on applications, while also trying to assess some subjective impressions, opinions and prevailing factors influencing the openness and acceptance of ICT in university teaching and learning.

Two questionnaires - for teaching staff and students - have been carefully compiled by an international project group and presented to 600 members of staff and close to 16,000 regular and part time undergraduate students, both in paper and electronic form. To keep the effort requested from participants low, special care in preparation has been devoted to the number of questions, their structure and compact, yet clear, formulation.

The survey described was proposed as one of the final activities in the scope of the European Tempus DETECH project, whose goal was to establish and develop the Department for Technology Supported Distance Education within the Centre for Distance Education Development at the University of Maribor (CDED at UM). The Department should offer consulting and technological services in the area of open and distance learning for pedagogical staff of the faculties (9 of them and one University college compose UM).

Survey Overview

Main goals and purposes of collecting the data are listed in the Abstract and will not be repeated here.

Target group The survey has been performed both on teaching staff and students.
As *teaching staff* all employees of the University of Maribor, full and part time, who are taking part in the educational process are considered. This includes professors (full, associate and assistant), teaching assistants (with PhD, MSc or BSc) and technical staff (laboratory workers and demonstrators involved in some parts of the educational process and having some kind of responsibility regarding students). Their total number was 600.

With *students* all students, full and part time, with some experience in university education are described. Because the survey has been performed in the beginning of the school year students of the first year (freshmen) were not included in the survey, leaving us with 15.657 students.

Structure of the questionnaires Based on ideas of the team members, material from other surveys and a brainstorming session a large number of possible questions was accumulated first. These were then arranged into groups to build the basic structure of the questionnaire. Six main groups, listed in Table 1, were formed. A set of questions in each group was then carefully studied, discussed and refined. The main goal was to minimise the number of questions and to make them as simple, uniform and clear as possible while still retaining large amount of information in the possible answers.

Survey conduction Both paper and electronic form were used in order not to bias the results in favour of the population with better access to Internet. We delivered one copy of the paper form to each staff member through the administration of each faculty. Also each student received a paper form at the time of his/her inscription in the beginning of the school year. Reference to the electronic form was clearly indicated on all paper questionnaires so everyone was offered both options to participate; members of staff were additionally informed by two e-mail notifications. Of course, the approval from the University management had to be obtained prior distributing the questionnaires.

In the scope of the survey we announced a prize drawing to: (a) stimulate the response and (b) provide a means for participant identification, which should allow us to neglect possible multiple entries.

Collection of paper forms was again organised through the faculty administrations and student offices, although it was also possible to send the form directly to the Centre for Distance Education Development.

Questionnaires

Table 1: Overview of the staff questionnaire

Area	Question	Answers
Background data	Faculty, Academic position, Educational Role, Sex, Age	
General	Is a PC with an Internet connection available to you during the time you do your professional work?	Yes (Satisfied?) or No (Why?)
Tools and applications	Do you have experience in the following areas?	Nineteen areas, 1-4 scale
Basic skills	Are you satisfied with your skills in...	Three topics, 1-4 scale
	Compared to other staff members at my own faculty, I believe my ICT skills are...	1-4 scale
Teaching/communicating with computer	Do you (and how often): use e-mail, use newsgroups, use and create electronic presentations, publish Web material...	Seven topics, 1-4 scale
	Do you partly (or completely) deliver content for your students over Web?	Yes (How?) or No (Why?)
Preferred improvement style	In which way do you prefer to improve your knowledge and skills in ICT?	

Table 2: Areas and questions which are different in the questionnaire for students

Area	Question	Answers
Background data	Faculty, Degree, Regular/Part Time, Sex, Age	
General	For how many hrs/wk you use (a) computer, (b) Internet?	Private use / For studies
Learning/communicating with computer	Do you (and how often): use e-mail, use newsgroups, publish electronically, use educational software, learn from Web...	Nine topics, 1-4 scale

Conclusion

We believe that the described survey is a good proposal for investigating the overall climate regarding the computers and Internet as the educational media among all participants in the process of university education. We were searching for measurable proofs of a shift toward information society in an environment of a traditional University. We were also hoping to relate current and desired ICT skills to the overall openness and level of adaptability to new educational paradigms and/or technologies. Complete results, which will be ready soon, should also allow us to draw some comparisons between teachers and students.

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How Telecommunication Technologies and Moderating Strategies in Online Instruction May Benefit Teacher Education

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Abstract: The purpose of this presentation is to share how two educators use varied moderating strategies in managing online asynchronous computer conferences to facilitate learning of in-service and pre-service teachers. Although the strategies were used slightly differently, commonalities of experience were found dealing with issues of levels of participation, intervention, learner autonomy and the effect of learner-to-learner interaction. The advantages of using moderating strategies both for the teacher and the student are discussed.

Introduction

Online instruction is a current trend in higher education and is greatly influencing the practices of both institutions and educators. At present an increasing number of faculty members in teacher education are implementing telecommunication technologies such as listserv and asynchronous computer conferencing both in courses delivered at a distance and as enhancements to hybrid courses. Course management systems such as WebCT and BlackBoard are being used for instruction in the hopes that an online learning environment enhances learning. The purpose of this paper is to share how educators may use these varied telecommunication technologies and useful strategies to structure and moderate computer conferencing to reach this goal.

The authors are two university professors who use moderating strategies in their instruction both online, and as online enhancements to face-to-face courses in their instruction of pre-service and in-service teachers. One instructor taught online courses to in-service teachers who did not meet the instructor every week while the other instructor taught pre-service teachers in a classroom setting, using computer conferencing for issues of technology in education as enhancement to classroom discussion.

Subjects

During two semesters, instructor A studied a course that was an undergraduate requirement in the teacher education department of a small Northeastern College. The course dealt with the integration of technology into curriculum and was the only technology requirement in the teacher education program. The students were comprised of pre-service secondary Math, Spanish, History and English teachers. Student computer experience varied widely. Some had grown up with computers and had a great deal of experience in working with technology while others had minimal experience and only had vague ideas of the meaning of terms including: hardware, software and networking and telecommunication. Both semesters the class consisted of 20 students with a fairly even distribution of males and females.

Instructor B studied a graduate course in the Instructional Technology program of a teacher college in the Western United States. The course was offered at two campuses. The subjects were in-

service teachers who were pursuing their Master's degree at the university. Since they had taken two technology courses for their teaching credentials and were working on their MA degree in Instructional Technology, their technology skills were relatively good. Many of them offered technology training to their colleagues at their schools, and some of them played technology leadership roles, such as being technology coordinators. The class consisted of approximately 20 students at the main campus and 10 students at another campus with a fairly even distribution of males and females.

Methodology and Structure

Instructor A

The course was divided into two groups of ten based on nothing more than their place on the class roster. Ten is a reasonable number since, if messaging is mandated, reading and responding to a large number of messages can become unwieldy while in much smaller groups the students may feel pressure to constantly perform and there might not be enough stimulus to maintain engaging discussions (Cifuentes, Murphy, Segur, & Kodali, 1997).

The entire class was instructed in how to moderate a computer conference through lecture and a non-theoretical written moderator training written by the instructor. The class was directed to subscribe to the 'Educause' listserv that deals with topics related to technology in education. This was done to expose the students to a diversity of issues and to offer a continuing stream of potential topics that could be used as source material. The BlackBoard course management system was used for asynchronous discussion. Within the two groups, one student per week was assigned to moderate a one-week conference. On Saturday two students, one per group, emailed the instructor a 'welcome message' including a topic, a number of propositions and a minimum of four open-ended questions. It was always important in a 'welcome message' to create a friendly and personal tone (Mason, 1991). The instructor would either make suggestions on improving it and having it resubmitted to him, or inform the student that the message was fine and should be posted to a special forum on BlackBoard by Sunday night. Hacker and Wignall (1997) found that in the participation in conferences lessened over time if students had little computer experience. Therefore everyone who was not a moderator for the week was required to post a minimum of three messages per week. The first must be a response to the 'welcome message' and must be posted by Tuesday night, the second should be a response to a non-moderator written message and should be posted by Thursday night. The third message, which would be posted by Sunday night, could be in response to anything previously posted. The moderator then wrote a summary, making liberal use of participant quotations, and posted it by Monday. It was suggested after the first semester that the moderator read the first and last message to the class since half the class was not party to the discussion and that was done during the second semester. Eastmond and Ziegahn (1995) proposed, along with mandating a certain number of messages per week, that there be standards established for the quality and relevance of the message. They suggested that participation accounted for 30% of the course grade agreeing with Cifuentes et al. (1997) who proposed that quality and quantity of messages should be able to raise or lower assessment by a full letter grade. In one semester online participation of Instructor A accounted for 30% of assessment, and the second semester an additional 10% was assessed for individual moderating.

The instructor made a choice not to participate in the conference. If the conference was going off-track or needed intervention, personal email was written to the moderator who was responsible for taking remedial action.

Instructor B

The course of Instructor B was a hybrid course in which the instructor met her students four times throughout the quarter—twice at the beginning, in the middle, and at the end. She valued active learning and meaningful learning (Grabe & Grabe, 2001; Brown, 1992; Knapp & Glenn, 1996; Means et al., 1993). Agreeing with Palloff and Pratt (1999), she designed her courses in a way that her students had to interact with other students to enhance learning. In a manner similar to Oliver (2000) and Santema and Genang (2000), she invited students to construct course materials together with her. All assignment submissions and discussions were conducted online via WebCT. She constructed a variety of forums (discussion boards) for students to communicate with each other and to share resources. Examples included forums for conducting discussions, making announcements, asking questions and receiving help concerning technical issues, submitting assignments, and providing feedback and critiques to their classmates.

During the first meeting, the entire class was instructed in what moderating was and in examples of moderating an online community. The students took turns to moderate their online community for a week, and chose the week when they would moderate. For the class with 20 students, they selected a partner who they would like to moderate with during the week. They needed to post discussion topics, host online discussions, answer questions posted by their classmates. They could also conduct any activities they created to enrich the online community, such as "happy hour" on Friday evening in chat rooms. The students were encouraged to explore new ways of moderating. It was understood that the instructor would not interrupt to answer questions unless it was necessary and that the moderators would receive credits based on how well they moderated the community. For example, if a question or a problem on a discussion board remained unanswered or not acted upon, the moderators of the week would be marked down. Moderators did not have to answer all questions or solve all problems but they needed to facilitate discussions about the issues within the community.

All students are required to participate in online communication by visiting the community on a daily basis and posting at least two messages with substance every week. Participating and moderating weighted 15% of the course grade.

Findings

Both instructors found that the level of discourse in the conference of all groups was quite high. Students who rarely speak up in class wrote eloquently and at length when engaging in online discussion. One student in the graduate course said, "I'm often quiet in class. I think I'm influenced by my family; I'm the youngest one in my family. However, I noticed that I was very eloquent online and felt very comfortable of expressing myself online."

It was virtually unanimous that students enjoyed the experience and would attempt to use it in future classes as long as the schools, in which they would work, had the required equipment. They also mentioned that they would recommend instructors who teach hybrid or online courses use moderating to enrich their online community.

Participation

Both instructors thought that the level of participation required was considered appropriate by a great majority of the students and that participation credits provided good incentive for students to engage in online communication. Nearly all students met the participation requirements and a good number of them posted many more messages than the minimum. Both instructors agreed that online participation was crucial for online community and recommended that participation credits be part of course grade.

Autonomy and Ownership

The majority of students felt a sense of ownership of their discussions both because they had control over how the discussion progressed and also because the instructors' decision not to participate. Instructors' involvement might have restrained discourse due to the intrusion of a figure of authority. Here are a few comments from the classes:

> I did enjoy moderating and controlling my discussion. I felt it allowed me to really think about each response...It was also interesting to see if I could spark some thought within the group, since that will be a main focus of being a teacher: "sparking thought."
>
> Having only students participate allowed the discussion to stay on a more familiar level with everyone. If teachers enter the discussion, it might be more advanced for some, and in return the students might be hesitant to ask certain questions, or they may be more self-conscious of what they say. I think that students learn very valuable information from discussion amongst each other.
>
> I've taken your online courses before and enjoyed this course much better because of the moderating. When I was the moderator, I tried to be creative and felt a sense of ownership. When I was a participant, I also observed how my classmates moderated and many of them had cool

ideas. I learned a lot from them. I felt that the moderating allowed me to see personalities and creativity of my classmates.

Interaction and Cohesiveness

Most messages contained support for the current moderator and a great deal of positive reinforcement. Phrases like: "Interesting topic," "Keep up the great work," "Great Post!" "Good comments, You sum it up quite well" and "Keep up the good work" were to be found in just about every message. The amount of politeness, words of agreement and general good manners tended to increase participation and create an atmosphere of warmth and cordiality. Of the undergraduate course, group members reported that they felt closer to other members of their group than they did to the half of the class they did not engage in computer conferencing. Of the graduate course, the students also expressed that they knew their classmates in the hybrid course better than their classmates in a traditional class. A student said, "In a traditional course, I only got to know people who sat close to me. In our online [hybrid] course, I talked to everyone and got to know everyone although I might not recognize his/her face. I felt much closer to my classmates." Several students of the graduate course expressed their sadness during the end of the quarter. A student said, "I feel sad that the class is over now. I really enjoy our online communication and hope to continue."

Advantages of Using Moderating Strategies

The advantages for students of learning and practicing moderating strategies included a sense of ownership of the discussion and a sense of freedom to direct discussions into areas that they believe might not be allowed in a traditional course setting. In addition, they learned how to form a community that could contain many resources and reveal a way of learning. A student of the graduate course said,

> There were so many resources in our discussion forums. I downloaded the messages and can use them later. This seems to be an effective way of learning. See! I can't keep taking classes in the university, but I may keep learning by forming such a community. Actually this should be how we learn once we are in the field.

This practice in class management should prove valuable in their later careers.

For instructors a major benefit is that putting the onus of moderation to the students saves a considerable amount of time while instilling skills of critical thinking in students. Although it is true that all conferences must be attended to quite closely, not writing responses, outside of occasional email to provide direction, frees up time for other activities. In addition, putting the moderation to the students may stimulate students to conduct active and meaningful learning.

Conclusion

The two university professors used telecommunication technologies and moderating strategies in their online instructions. Although they used the strategies slightly differently, they found commonalities of experience dealing with issues of levels of participation, intervention, learner autonomy and the effect of learner-to-learner interaction. Both instructors thought that the moderating enhanced students' learning and benefited teacher education. They invite educators to use the technologies and strategies and to explore their potentials in education.

References

Brown, A. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. Journal of the Learning Sciences, 2(2), 141-178.

Cifuentes, L., Murphy, K., Segur, R., & Kodali, S. (1997). Design considerations for computer conferencing. *The Journal of Research and Computing, 302*(2), 177-201.

Eastmond, D. V., & Ziegahn, L. (1995). Instructional design for the online classroom. In Z. L. Berge & M. P. Collins (Eds.), *Computer mediated communication and the online classroom: Distance education* (Vol. 3, pp. 59-80). Cresskill, NJ: Hampton Press.

Grabe, M. & Grabe, C. (2001). Integrating technology for meaningful learning. Boston, MA: Houghton Mifflin Company.

Hacker, K. L., & Wignall, D. L. (1997). Issues in predicting user acceptance of computer-mediated communication (CMC) in inter-university classroom discussion as an alternative to face-face interaction. *Communication Reports, 10*(1), 107-114.

Knapp, L., & Glenn, A. (1996). Restructuring schools with technology. Boston: Allen & Bacon.

Mason, R. (1991). Moderating educational computer conferencing: DEOSNEWS, 1(19) (Vol. 1). Archived as DEOSNEWS 91-00011 on LISTSERV@PSVUM.

Means, B., Blando, J., Olson, K., Middleton, T., Morocco, C., Remz, A., & Zorfas, J. (1993). Using technology to support education reform. Washington, D. C.: Office of Educational Research and Improvement.

Oliver, R. (2000). "Web Tools: Flexible and Reusable Resources for Web-Based Learning". Presented at the annual convention of World Conference of Educational Multimedia, Hypermedia, and Telecommunications, Montreal, Canada, June.

Palloff, R. M. & Pratt, K. (1999). Building Learning Communities in Cyberspace. San Francisco, CA: Jossey-Bass Inc.

Santema, S., & Genang, R. (2000). "Rethink Education: How We Make Our Learners Instructors". Presented at the annual convention of World Conference of Educational Multimedia, Hypermedia, and Telecommunications, Montreal, Canada, June.

Tasting Fine Wine Online for MERLOT:

Criteria for Evaluating Multimedia Educational Resources for Learning and Online Teaching

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Abstract: MERLOT (Multimedia Educational Resource for Learning and Online Teaching) is a database of high quality online resources that can be used to improve learning and teaching within higher education. The resources in MERLOT include (a) links to thousands of learning materials, (b) sample assignments that show how the materials could be used in the classroom, (c) evaluations of the learning materials by other individual users and panels of faculty, and (d) links to people with common interests in a discipline and in teaching and learning. This paper describes the peer review process used for materials submitted to the Teacher Education Discipline section of MERLOT at http://merlot.org and the process for becoming an external reviewer.

Introduction

Many teacher education faculty members are reluctant to develop web-based instructional materials for use in their classes. Others have difficulty finding quality resources to use in their online courses. To encourage the effort that is required to develop these resources, MERLOT (Multimedia Educational Resources for Learning and Online Teaching) offers a peer review process that is comparable to the peer review process for journal articles. The purpose of MERLOT is to identify high-quality web-based materials that are appropriate for use in teacher education. While there are many databases for K-12 materials, MERLOT's Teacher Education discipline group at http://teachered.merlot.org focuses on sites that are used by other teacher educators and/or have been prepared by teacher educators.

MERLOT's Peer Review Process

Professionals within the field evaluate sites that have been submitted to MERLOT, a database of instructional materials available on the web for student learning and online teaching. The peer review process for evaluating teaching-learning materials follows the model of peer review of scholarship. Each review is conducted by a minimum of two reviewers and results are linked to information about online learning materials that are submitted to MERLOT at http://merlot.org. The review process is quite rigorous in order to provide the best information to potential users. Three major areas are evaluated: (1) Quality of

Content; (2) Potential Effectiveness as a Teaching-Learning Tool; and (3) Ease of Use. As a result of the peer review process, many institutions are now considering websites that have been evaluated by the MERLOT Peer Review Panels as comparable to peer reviewed journal articles.

Evaluation of these three areas (quality of content, potential effectiveness for teaching and learning, and ease of use) guides comprehensive assessment and peer review of the site. The review process yields high-quality peer reviews that support faculty members in validating the importance of online learning materials they develop for their students to use. For reviewers, engagement in the peer review process provides an excellent means of examining sites in their own instructional areas that they might use in their own classes. For all of us in teacher education, the review process provides a means of acknowledging and highlighting worthwhile sites. Finally, as the MERLOT database grows and more sites are reviewed, we will all be able to save time when looking for ways to incorporate web-based teaching and learning activities into our university classes.

Quality of Content

Reviewers with content expertise and experience with online teaching evaluate the quality of the content based on specific criteria. For example, the material must present correct concepts, models, and/or skills within the area of teacher education addressed. In addition, the concepts, models, and/or skills must be considered significant. This means that the content addresses core curriculum areas or areas identified as important by professional organizations. For example, if a site presents material about learning theories, we would expect to find up-to-date information about current theories of learning, such as constructivism. Additional areas examined in the area of quality of content include whether the material is considered difficult to learn and whether the material is essential for building more complex concepts, models, or skills.

Potential Effectiveness as a Teaching/Learning Tool

Another area that is evaluated is the potential effectiveness of the site as a teaching-learning tool. This simply means that the site is viewed through the lens of possibility. Can the reviewer envision how the site might be used for teacher education? This question is at the core of what occurs during this part of the review. Developers of online learning materials can aid this process when they include their learning objectives, characteristics of target learners, and how they use the materials. Reviewers also consider whether the site can be used to improve the teaching/learning experience. Another consideration is whether a site can be easily integrated into the teacher education curriculum. Several other areas that impact potential effectiveness of how the site can be used in the teaching/learning process are also considered and evaluated: potential for improving the teaching/learning process, ease of integration into a variety of courses and pedagogies, and potential for developing a variety of good learning assignments around the web-based learning material. Evaluation of this area is contingent on how authors and reviewers envision using the material under review. For example, "if this site is used with graduate students as an independent homework assignment for them to learn X, but for undergraduates if might be more appropriate to use this site during class with the goal of teaching X."

Ease of Use

Ease of use deals with accessibility for the teacher educator and by teacher education students as well. The user/site interface is of major concern here. The design of the site needs to be consistent and navigation through the site should not interfere with the learning process. Users should be able to travel through the software without getting lost or trapped. Appearance of the site is also important and requires consideration of font types (are they readable?) and background/foreground contrast, among other things Also considered is the balance between how difficult the site is to use compared to its instructional value. In other words, if the site requires that users spend time learning how to use it, then the learning experience

must have high value relative to the time involved. For example, if a site is a simulation about classroom management, does the time needed or the difficulty of using the simulation negate the value of what students learn about classroom management? Other considerations include whether special plug-ins are needed to access the site and whether using the site requires a lot of documentation, technical support, and/or instruction for students to be successful.

Expanding the Peer Review Process

The Teacher Education Editorial Board for MERLOT want to make MERLOT's criteria for evaluation of online learning and teaching materials public to those who develop or contribute learning materials to the MERLOT database. We are also interested in expanding the pool of peer reviewers. Ultimately, we hope that peer review of online resources for teacher education will be a shared venture among those of us with interest and expertise in web-based learning and teaching.

In order to increase the number of online learning materials that are peer reviewed and to ensure adequate coverage of all the areas within the field of teacher education, members of the Editorial Review Board may invite an external reviewer to participate in the review process. External reviewers are qualified faculty from institutions of higher education who (a) are selected by the editorial board and approved by the Co-Editors, (b) come from any institution of higher education (they do not need to be MERLOT sponsors), and (c) will be partnered with and mentored by editorial board members for their first reviews. People interested in becoming an external reviewer can also apply by joining MERLOT and creating a MERLOT member profile, which contains a narrative summarizing their context expertise, teaching excellence, use of technology in teaching, and connections with professional organizations. Applicants should also designate the subject/discipline areas that they are qualified to review. An applicant should then email the Chief Co-Editor(s) about his/her interest in being an external reviewer. Contact information and more details about being an external reviewer can be found at http://taste.merlot.org/join/external.html.

Other Ways to Become a Part of the MERLOT Community

Other ways to contribute to the MERLOT community of teacher educators who use online learning materials include adding user comments and assignments. User comments are usually brief remarks that address the same criteria as more formal peer reviews: quality of content, potential effectiveness as a teaching-learning tool, and ease of use. User comments include both general remarks and technical remarks. Anyone who has used an item in the MERLOT database is invited to add a user comment. Authors and users of learning materials in MERLOT are also invited to submit details of assignments they have developed for particular courses or specific classes based on learning materials in the MERLOT database. Assignments include information about the course in which the site was used, the level of students in the course, relevant topics covered, student learning objectives, any needed pre-requisite skills, and details about the assignment including assessment procedures and time frame required. Assignments are very useful to members of the MERLOT community because they provide guidance about how others have used a particular site in the MERLOT database. Because MERLOT is a resource for all faculty (and their students) engaged in online teaching and learning, contributions in the form of new sites, user comments, assignments, and peer reviews are welcome. MERLOT is a *free* and *open* resource, which is made viable by the community of people who contribute to and use MERLOT to enhance online teaching and learning.

A STUDY OF HOW TECHNOLOGY TEACHER USING INTERNET SEARCHING ENGINE FOR LESSON PLANS

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Abstract: The purpose of this study was to identify how technology teacher using Internet searching engine for initiating and updating their lesson plan. An investigation research method was applied for this study. There were two phases in this research. In the first phase, an on line recording system for browsing path, screen images and operating video was setup for technology teachers who were experienced searching engine users. By reviewing recorded data the goals, procedures and functions of using Internet searching engine for lesson plan were drawn. In the second phase, a investigating tool was design based on the result of the first phase. Questionnaires were delivered to random sampled technology teachers for collecting data. The statistical process was followed for analyzing collected data. Conclusion of research problem was drawn from the analysis result. Based on the result of data analysis of both phases, a portal type environment of technology teacher professional searching engine for lesson plans was discussed and suggested.

When a technology teacher edits a lesson plans, he/she often needs much information for his/her lesson plan. However, when he/she wants to search his information in demand on the WWW, he/she just can find information in the shortest time by searching engine besides finding information at known professional webs or relative webs. But each searching engine provides different searching functions and information range. For this reason, it is necessary to build a portal type environment of technology teachers professional searching engine for lesson plans. Before reaching this purpose, we must know how technology teachers using internet searching engine for lesson plans. Therefore, the purpose of this study was to identify how technology teachers using Internet searching engine for initiating and updating their lesson plans.

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Methodology

There were two phases in this research. In the first phase ,an online recording system for browsing path ,screen images and operating video was setup for technology teachers who were experienced searching engine users. In the second phase, investigating tools was designed based on the result of the first phase. Questionnaires were delivered to random sampled technology teachers for collecting data. Technology teachers were asked to mark a Likert scale from"Strongly Disagree" to "Strong Agree". The population of this study was technology-practicing teacher in Taiwan. The total was around 300. The Random sample procedure was applied to distribute 45 , 15%, questionnaires. There were 39 returned. The research instrument divided into three parts, profile information, terminology explanations, and 36 Likert-type questions. The Alpha reliability coefficient of this instrument was 0.87.

RESULTS & CONCLUSION

The profile information listed as follows:

1. Gender: male (89.2 %) ,female(10.8 %) .
2. Using computer attitude: 88.9 % of them liked using computer , 11.1% of them were neutral.
3. Learning computer experience: 1~5 years (78.3 %), 6~10 years (19 %), above 15 years (2.7 %).
4. Using computer time a week 0~30 hours(62.2 %),31~60 hours(32.4 %), above 60 hours (5.4 %).
5. Contacting to Internet time : 1~5 years (86.5 %) , 6~10 years(10.5 %),and above 10 years(3 %).
6. Using Internet search-engine time: 1~5 years(94.6 %),6~10 years(5.4 %).
7. Internet instrument accessibility: 2.7 % were hard , 18.9 % were neutral ,40.5 % were easy, 37.8 % were very easy.
8. Self-estimating operating search-engine (scale degree from 1 to 10): scale 5(8.1%),scale 6(5.4%),scale 7(24.3%),scale 8(37.8%),scale 9(16.2%),scale 10(8.1%).

- Based on the one-sample Test of each Likert-type question, it was concluded how technology teacher using search-engine for their lesson plan. They used Internet search-engine in following ways:

  Synonym search; Key-word search; Semantic search; Subjects browsing; Initiating new lesson plan; Editing lesson plan; Contract filtering data; Verifying data; Parallel filtering data; Comparing data.

- There existed no difference between gender among different search-engine operations. The attitude toward computer would be a factor influencing using search-engine in verifying data manner.
- The person with higher level of positive attitude was with higher intention to verify data from search-engine.
- The instrument accessibility factor made no difference among types of search-engine usages.
- The ability of operating search-engine also made no difference among types of search-engine usages.

According to these findings, an environment of technology teacher professional search-engine for lesson plans could be designed to reduce technology teachers searching information time and frequency, help teachers selecting information, and editing lesson plans.

The Responsive M.Ed.: Using Technology to Reinvent the Master's Degree

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The M.Ed. for Experienced Teachers was specifically designed to meet the needs of experienced classroom teachers. This cohort-based degree program offers practicing teachers a unique opportunity to engage in action research throughout their academic experience that is directly related to their classroom teaching. It is our intent that teachers enrolled in the program will not only be able to immediately apply what they are learning in their graduate coursework into their classroom, but that the program will also help combat the growing attrition rate of our state's teachers.

To most effectively address the expressed needs of classroom teachers, alternative modes of instruction are used throughout the graduate program. Combining face-to-face instruction with Internet-based instruction allows practicing teachers to maximize their participating in the program. Teachers engage in intensive face-to-face instruction during the summer. Courses offered during the fall and spring semesters employ alternative delivery methods. That is, a percentage of the courses are delivered through web-based instruction, and a percentage is delivered through off-campus face-to-face instruction.

The goal underlying this effort is innovation rather than efficiency. "Technology's true potential is realized when it is employed in innovative ways which do not necessarily correspond to traditional classroom practices" (Pinheiro, 1998, p. 118). Distance education strategies are typically aimed at reaching as many students as possible to increase revenue (Garrison, 1993). The M.Ed. for Experienced Teachers, however, seeks to use distance learning strategies to maximize and enrich the students' academic experience and allow the teachers flexibility of pursuing a graduate degree while continuing to teach in the classroom. The potential of virtual communities for collaboration has been noted almost from the beginnings of the Internet. "The technology that makes virtual communities possible has the potential to bring enormous leverage .... But the technology will not in itself fulfill that potential; this latent technical power must be used intelligently and deliberately by an informed population" (Rheingold, 1993).

Teacher education programs have been mandated to prepare and support teachers who are well-versed in technology and able to collaborate within buildings and with other K-12 schools to share resources and strategies (Merryfield, 1999; NCATE, 1997; USDOE, 2001). Consequently an additional goal of this graduate program has been to model effective pedagogical strategies for teachers, who may then serve as change agents when they employ similar collaborative methodologies in K-12 schools.

Modeling collaborative education methods for K-12 teachers increases the likelihood that they will employ similar methods in their own classes. Recent data suggests that professionally engaged teachers differ significantly from classroom teachers who are isolated in their classrooms. (Riel & Becker, 2000). By using collaborative education tools, we are taking a step towards restructuring teacher education and preparing teachers to form "collaborative community activity" (Riel, 2000) of their own within and among classrooms, schools, and districts. Thus, our M.Ed. for Experienced Teachers' graduates are better prepared to act as change agents (Rogers, 1995).

This short paper will present initial data analysis from the first year of the program.

References:

Garrison, D. R. (1993). A cognitive constructivist view of distance education: An analysis of teaching-learning assumptions. Distance Education, 14(2), 199-211.

Merryfield, M. (1999). Crossing cultures, building community, and knowing the "other" when a required multicultural education course is taught online. Paper presented at the American Educational Research Association, Montreal, Canada.

NCATE. (1997). Technology and the new professional teacher: Preparing for the 21st century classroom. Washington, D.C.: National Council for Accreditation of Teacher Education.

Pinheiro, E. J. (1998). Collaborative learning. In D. G. Oblinger & S. C. Rush (Eds.), The Future compatible campus: Planning, designing and implementing information technology in the academy (pp. 118-130). Bolton, MA: Anker Publishing Company, Inc.

Riel, M. (2000). New designs for connected teaching and learning. Secretary's Conference on Technology. Available: http://www.gse.uci.edu/mriel/whitepaper/2print.html [2001, June 1].

Riel, M., & Becker, H. J. (2000). Beliefs, practices and computer use of teacher leaders. Paper presented at the American Educational Research Association, Montreal, Canada.

Rheingold, H. (1993). The Virtual Community. Available: http://www.rheingold.com/vc/book [2001, June 4].

Rogers, E. M. (1995). Diffusion of Innovation (4th ed.). New York: The Free Press.

USDOE. (2001, August 24, 1999). Preparing tomorrow's teachers to use technology. [web]. Available: http://www.ed.gov/teachtech/ [2001, February 15, 2001].

Assessing Distributed Learning: Student Perceptions and Future Directions

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Abstract:
This study assessed distance students' perceptions of distributed learning, the advantage and disadvantages; the impact it had on their learning. (and to plan future directions with web-based courses). Graduate students were surveyed fall 2000 through summer 2001 (N=242). Using UPSS, frequencies and percentages were calculated to determine the rank order findings for the advantages and disadvantages of web-based courses. Means were calculated for the Likert scale items, student attitudes toward web-based instruction. Chi-square tests were also run to determine if any relationships existed between selected student characteristics such as gender, technology background, degree program, and online experience and attitudes toward web-based courses. Major advantages of web-based courses included decreased travel requirements, ability to communicate electronically with the instructor and class, easy accessibility of course materials, and flexibility in completing the course. The greatest obstacles reported by students were the frustration that resulted when they were unable to get online and having technical equipment problems.

Introduction

Advances in distributed learning have provided students with a wide variety of teaching/learning alternatives that have expanded the educational process beyond the traditional classroom. In addition to the face-to-face mode of instruction students now receive instruction through teleconferencing, online and/or web-based instruction, e-learning, and other advancements currently taking place with telecommunications technologies. The advancements have been rapid and will continue to expand and impact our educational process (Hooper, 2001; Kearsley, 2000; Schreiber & Berge, 1998; Trent, 2001).

The effectiveness of distributed learning and students' receptivity to the new delivery modes must be more closely examined to ensure effective learning is in fact taking place and students do favorably receive the various types of distributed learning (Berge, 1998; Berge, 2001; McKenzie & Mims et.al, 2000; Palloff & Pratt (2001). To gain a more in-depth understanding of how distributed learning impacts students, a yearlong study was conducted at a medium university in the southeastern United States. The investigators' goals were to understand students' perceptions of the advantages and disadvantages of web-based instruction; the impact that web-based courses that on students and future directions for web-based courses.

The Study

In order to study student perceptions of web-based instruction, students enrolled in web-based courses in media and instructional technology, educational leadership, and curriculum and instruction between fall 2000 and summer 2001 were surveyed (N=262). All classes used on-line instruction and were delivered by experienced distance instructors. The vast majority of the courses used on-line instruction more than 50% of the time.

Using the research findings and a review of the literature, the survey was constructed. Closed and open-ended questions were used to generate the study's data on advantages and disadvantages of web-based courses, types of skills web-based instruction develops in its participants, to determine whether or not different learning styles are accommodated, and to evaluate changes that may be needed to enhance web-based courses. The study was

pilot tested by eight members of the target popular and distance experts. Revisions were made before the final version of the survey was distributed.

Twelve instructors distributed the surveys to students near the end of the semester through electronic or paper survey. If a student had completed the survey previously they were instructed not to complete the survey again. Respondents were asked to reflect on their experiences in a web based on-line class and respond to the questionnaire honestly and return it to their instructor as soon as possible. They were informed the data would be kept confidential and used to make more informed decisions on the use of on-line instruction in the future. Most of the students agreed to participate in the study.

The returned surveys were entered into SPSS. Frequencies and percentages were calculated and rankings determined for each web-based course advantage and disadvantage. Means were calculated for the Likert scale items in part two of the survey. Chi-square analyses using gender, degree program, technology background, and prior experience in web-based courses as independent variables and identified advantages and disadvantages to web-based courses as dependent variables were also calculated.

Findings

A total of 262 students completed the survey. The gender demographic was 77% female, 23% male. A majority of the participants were enrolled in graduate degree programs: 68% were pursuing a Masters degree, 23% were working toward an Educational Specialist degree, and 7% were studying for a doctoral degree. One percent of the respondents were undergraduates, and the remaining 1% were not working toward a degree. Most of those replying were majoring in Media and Instructional Technology (44%) or Educational Leadership (28%). Other majors represented included Special Education (5%), Elementary and Early Childhood (4%), Middle Grades (3%), Counseling (3%), Physical Education (2%), Art Education (1%), and Business Education (1%). Other majors (9%) had less than 1% representation in each field of study.

Most students enrolled in the web-based courses were moderate to heavy users of technology. Twenty-seven percent indicated they used technology between 7-12 hours per week, 23% reported technology use of 13-18 hours per week, 21% utilized technology over 24 hours per week, 15% said their weekly use of technology averaged 19-24 hours, and only 14% used technology less than 6 hours per week. However, most students were relatively new to web-based instruction. The majority (61%) were taking their first or second web-based course when they responded to the study, although 24% were enrolled in their third or fourth course, 11% were in their fifth or sixth, and 4% had taken seven or more web-based courses. Most students (71%) reported that the current course they were enrolled in was 51-70% web-based, 24% of the respondents indicated that the web-based component of their course was 50% or less, and the remaining five percent of the students noted their course was 71-100% web-based.

Respondents were asked to identify which of a list of 11 attributes they perceived as advantages of web-based instruction. The majority of students (between 60 and 94%) categorized seven of the listed characteristics as advantages. A decreased travel requirement to campus was identified by more students (94%) as being an advantage of web-based education than any other attribute. Other attributes clearly identified as advantages of web-based classes included the ability to communicate electronically with the instructor (84%), easy access to course materials (82%), and flexibility in completing course assignments (81%). Some students indicated that timely feedback from the instructor on assignments (65%), the opportunity to enhance personal computing skills (64%), and the opportunity to use web resources (60%) were advantages of web-based courses. Fewer respondents indicated that ease of expression (45%), support of varied learning styles (41%), collaborative opportunities for students (38%) or teachers (38%), and opportunity to interact with a wide range of students (37%) were web-based course advantages. Table 1 lists the attributes that students responded to, and ranks them in order according to the percentage of respondents identifying them as web-based course advantages.

Rank	Perceived Advantage	%
1	Decreased travel requirements to campus for class	94%
2	Ability to communicate electronically with instructor and/or class	84%
3	Course materials can be readily accessed any time from any place	82%
4	Flexibility in completing the course and/or assignments	81%
5	Timely feedback from the instructor and/or students on assignments or projects	65%
6	Opportunity to enhance personal computing skills needed to take a web-based course	64%
7	Opportunity to take advantage of a variety of resources on the web	60%

8	Some students express themselves more effectively through electronic communication	45%
9	A variety of students' learning styles are addressed	41%
10	More collaborative opportunities are available for student work	38%
10	More collaborative opportunities are available for instruction	38%
12	Opportunity to interact with wider range of students	37%

Table 1: Perceived advantages for web-based courses

Participants were also asked to identify web-based instruction disadvantages. Seven attributes were listed, but none were classified as a disadvantage by a majority of the respondents. Difficulty in securing online/computer access was identified as a disadvantage most frequently (49% of the respondents), followed by technical problems (42%) and students' inability to communicate effectively online (41%). Some noted that lack of student computer skills was a disadvantage (37%), as was lack of face-to-face interaction with teachers and classmates (36%). A few thought web-based courses did not address diverse learning styles (19%) and only 9% perceived lack of feedback to be a disadvantage. Table 2 lists the attributes that students responded to, and ranks them in order according to the percentage of respondents identifying them as web-based course disadvantages.

Rank	Perceived Disadvantage	%
1	Lack of access to computers or inability to get online	49%
2	Technical equipment problems	42%
3	Some students are unable to express themselves effectively online	41%
4	Lack of student computing skills	37%
5	Lack of face to face interaction with the instructor/class	36%
6	Many of the diverse learning styles of students are not addressed in a web-based course	19%
7	Lack of feedback from the instructor and/or classmates	9%

Table 2: Perceived disadvantages for web-based courses

Respondents were also asked whether they agreed or disagreed with a variety of statements regarding the value and future use of web-based courses. A seven-point Likert scale (1=Strongly Disagree and 7=Strongly Agree) was used. Students strongly supported the expansion of web-based (u = 5.84) and the use of the World Wide Web (u = 5.55). They were also agreed that the course they were enrolled in had been enhanced through the use of web-based instruction (u = 5.49), and that participating in a web-based course had improved their general computing skills (u = 5.31) as well as their electronic communication and Internet skills (u = 5.29). Students were relatively neutral about team teaching in web-based courses (u = 4.40) and about the ability of web-based courses to address different learning styles. Table 3 identifies the Likert scale items, ranked according to positive mean response.

(Response Scale: 1=Strongly Disagree, 7 = Strongly Agree)	Mean	S. D.
Web-based instruction should be extended to other classes where feasible	5.84	1.60
The WWW should be utilized more in future web-based courses	5.55	1.55
Web-based instruction enhanced this class	5.49	1.67
My computing skills (word processing, preparing presentations) were enhanced as a result of taking this web-based course	5.31	1.83
My electronic (i.e., sending e-mail, attachments) and internet skills were enhanced as a result of taking this web-based course	5.29	1.80
More team teaching should take place in future web-based courses	4.68	1.69
The different learning styles of students are more effectively addressed in web-based courses	4.40	1.67

Table 3: Attitudes toward value and future of web-based courses

Chi-square analyses were performed to determine if any significant relationship existed between the demographic characteristics (gender, year of study, major field of study, amount of weekly technology use, prior experience with web-based courses, or percentage of current course that was web-based) and attitudes toward the value and future of web-based courses. For this analysis, Likert responses ranging from 1-3 were recoded to represent the disagree category, a response of 4 was recoded to represent the neutral category, and responses from 5-7 were recoded to represent the agree category. Only one significant relationship was found and that was the attitudes of men and women toward the efficacy of web-based courses in addressing different learning styles. The

majority of women were neutral or disagreed that web-based courses were more effective in dealing with different learning styles, whereas the majority of men believed that web-based courses were more effective in addressing diverse learning styles. Table 4 summarizes these findings.

	Female	Male	Total
Disagree	47	17	64
Neutral	64	8	74
Agree	86	35	121
Total	197	60	257
X^2=8.498, df=2, p=.014			

Table 4: Gender differences in attitudes about web-based courses and learning styles

The results showed students perceived a variety of advantages to web-based courses, and few, if any, real disadvantages. Most students believed that the number of web-based courses should be increased, and that web-based courses improved their technology skills. The main concern identified by students was whether web-based instruction could address a variety of learning styles.

Conclusions and Recommendations

Based on this study, the researchers found that while most students were familiar with technology, web-based learning produced some anxieties. The ability to work from home, and having instructors and classmates virtually on a 24/7 basis appeared to be the biggest advantages for this instructional format. Instructors who are aware of the perceived personal contact and who enhanced courses with digital pictures and small group projects are perceived by students as more accessible. Recommendations for future studies include addressing student gender issues and learning styles and how instructors go about addressing these needs.

References

Berge, Z.L. (1998, Summer). Barriers to online teaching in post-secondary institutions. Online Journal of Distance Learning Administration, 1 (2), (Online). Available: http://www.westga.edu/~distance/Berge12.html

Berge, Z.L. (2001). *Sustaining distance training*. San Francisco, CA: Jossey-Bass.

Brooks, D.W., Nolan, D.E. & Gallaher, S.M. (2001). *Web –teaching*. New York, NY: Kluwer Academic/Plenum Publishers.

Hooper, K.B. (2001). Is the Internet a classroom? *Tech Trends*, 45 (5), 35-43.

Kearsley, G. (2000). Online education – *Learning and teaching in cyberspace*. Us: Wadsworth Publishers.

McKenzie, B., Mims, N., Kirby, E. & Waugh, M. (2000, Fall). Needs, concerns and practices of online instructor. Online Journal of Distance Learning Administration, (Online) Available: http://www.westga.edu/~distance/ojdla/fall33/mckenzie33.html

Palloff, R.M. & Pratt, K. (2001) Lessons from the cyberspace classroom – the realities of online teaching. San Francisco, CA: Jossey Bass.

Scheiber, D.A. & Berge, Z.L. (1998). *Distance training*. San Francisco, CA: Jossey-Bass.

Trent, D. (2001). *Welcome to cyberschool*. New York, NY: Rowan & Littlefield Publishers, Inc.

Course Preparation for Online Learning: What Faculty Should Know

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Abstract:
The purpose of this study was to explore how instructors using distance education/on-line teaching and learning technologies (DE/OL) are using these technologies in their classes: their practices, problems, solutions, and any emergent patterns. Faculty were surveyed to determine what technologies they use and how they use them to support teaching and learning. Participants responded to questions dealing with a variety of issues such as incentives for teaching using DE/OL, time allocated to DE/OL teaching, preferred class size, formal training received, perceived return on investment. The survey data were content analyzed and entered into SPSS and analyzed.

Introduction

Telecommunications advancements in the past decade, the increasing importance of information technology in our lives, and the emphasis on lifelong learning today have been major factors encouraging faculty to change their traditional methods of teaching and jump into distributed learning to better meet the needs of distant learners (Berge, 2001; Kearsley, 2000). An increasing percentage of our students in higher education find themselves limited by time and/or distance constraints and need alternatives to traditional instructio. .o obtain professional development, certification and/or advanced degrees. Distributed education is one popular solution to this growing problem (Hooper, 2001; Phillips & Merisotis, 1999). Ely stated, "Community colleges and universities are offering more than 52,000 courses at a distance and many more are in the planning stages (2000, 26). Piccano reported, "The U.S. Department of Education indicates that in the two-year period between 1995-96 and 1997-98, the number of postsecondary institutions offering Web-based distance learning courses had tripled, far exceeding the growth of any other distance application (2001,164). Hooper (2001) concurred, "Online teaching has become an important element in the gathering momentum of the Knowledge Age" (35).

The effectiveness of distance courses is dependent on faculty members' ability to deliver their courses using this new format (Betts, 1998; Berge, 2001; Rockwell, S.K. & Schauer, et.al. 1999). Faculty must learn to adapt their traditional face-to-face classes and put it into an electronic format. Ko and Rossen stated, "Because teaching online is relatively new, many people don't know what it is, or how it's done, or even what some of the terms used to describe it mean. Others may have a notion of what's involved, but they don' t know how to get started, or they feel some trepidation about handling the issues they may encounter. Perhaps this is because the online environment is so different from anything most instructors have encountered before." (2001, 2). Hooper cited Calhoon stating, "educators are learning how to teach on the Internet as they go along and, predictably, there are risks, mistakes, and failures" (2001, 39). Courses taught through distance technologies have a number of significant differences from the traditional face-to-face classes. Faculty need to be aware of these differences and how to modify their courses, especially their teaching strategies, to be successful in this environment.

Distance learning is ever-changing and it requires faculty members to keep up with the latest developments in pedagogy as well as enhancing their skills. (McKenzie, B.K., Mims, N., et.al; Williams, 2000). Faculty teaching courses through distance education technologies are confronted with many decisions hat include the type(s) of distance technologies to utilize, the number of times students will meet in a face-to-face setting vs. through a technology-mediated "distance education" environment. Faculty are concerned about how much time to devote to interacting with students. Other questions to answer may include: Do faculty know just what to expect before jumping into teaching distance classes? What are the teaching practices of instructors who engage in distance education? How are instructors in higher education using distance education technologies? What problems are these

instructors facing and how are they solving them? To answer some of these questions, a two-year study was undertaken by faculty at the State University of West Georgia.

The Study

In order to study how instructors are using distance technologies in their classes in the state, the researchers used two existing distance education listervs (one that linked users of WebCT around the state of Georgia and the other one that linked distance education instructors at Georgia College and State University) and a series of faculty contacts on many of the campuses in the Georgia university system. These sources were used to distribute the electronic address of a web server-based survey instrument that was used as the basis for collecting participant input. Although the respondents to this on-line survey were self-selected, they represent a sub-set of those higher education instructors in Georgia who are pioneering the use of distance education/on-line learning (DE/OL) technologies. Therefore, the opinions and perceptions of this sample should provide valuable information for administrators and others interested in DE/OL efforts about the issues and problems facing DE/OL instructors.

The survey instrument used for the present study was adapted from a previous survey administered in 2000 to UWG "distance education" instructors. Findings from the 2000 survey and a review of the literature were used to construct the survey instrument used in this study. Participants were asked to respond to open- and closed-ended questions.

The instrument revisions from the first year study included the following: (1) the instrument was put into an electronic format; (2) respondents were asked additional demographic questions (i.e., where do you teach, academic department, gender, number of courses presently teaching using some form of distance technology, and percent of course that uses distance technologies) and (3) respondents were asked additional questions specifically related to distance education/ on-line learning (i.e. what is distance education/ on-line learning? Does your technology-mediated course involve any face-to-face meetings?). For these open-ended questions boxes were provided for text entry. For closed-ended questions participants were required to select choices from a list of alternatives or to check all responses from a list that applied to their situation. The survey was pilot tested by a three distance education experts in the state and revisions were made before the instrument was used to collect the data in this report.

To examine how faculty are using DE/OL technologies for instructional purposes, the types of problems that are occurring and possible solutions that might be offered, DE/OL technology-using faculty from the State University of West Georgia and other higher education institutions in the state of Georgia who belong to one or two listservs were surveyed (their involvement was directly solicited, i.e., they were asked to complete the survey. However, we also asked them to forward the e-mail to any others whom they knew who were also using distance education and would have experience to share). All participants had taught at least one distance class during the year and voluntarily agreed to participate in the study.

After a series of discussions with distance experts in Georgia about the survey and its revisions, and another review of the literature, the research team designed an electronic survey to assess DE/OL instructor's practices, problems, and solutions to problems. The first part of the revised survey asked participants for demographic data (i.e., where they taught, academic department, rank, gender, and prior teaching experience. The participants were also asked to define in their own words "distance education/on-line teaching." The remainder of the survey utilized both open and closed-ended question to query participants about the: technologies they use for distance teaching, training they received, experience teaching courses in face-to-face and distance format, teaching format they prefer, optimal class size, importance of face-to-face meetings, and the assistance they need to be more effective in teaching.

E-mail messages sent to UWG faculty requesting their participation in the study were sent the end of April 2001. Two weeks later, reminder e-mail was sent. The first week in May, two distance education listservs were used to contact other DE/OL instructors in higher education in Georgia and solicit their participation in the study. Listserv members received a message explaining the nature of the study, the types of participants requested, and where to go to complete the online survey. Two weeks later, a reminder e-mail message was also sent to the members of these two listservs. A total of sixty-six participants completed the survey.

All of the participants responded by completing an on-line survey that submitted their responses to a web server/Filemaker database. The quantitative data from the survey were analyzed using the Statistical Package for the Social Sciences (SPSS v10). The qualitative data were analyzed by examining the content of the responses and grouping the responses into categories. These categories were summarized by reporting their frequency of occurrence or by reporting selected, representative comments.

Findings

Sixty-six faculty members from 19 different higher education institutions in Georgia responded to the survey. There were an equal number of male and female respondents (n=32). Two respondents did not report their gender. Assistant professors had the highest participation (34.8%) followed by Professors (25.7%) and Associate Professors (25.7%). Most of the participants came from the Health, Nursing and Medical fields (29%), Social Science and Humanities (23%), and Education (18%). Respondents reported having from 1 to 15 years of teaching experience. The majority of the faculty who responded to the survey reported teaching six years or longer.

The participants reported receiving between zero and 20+ hours of training with DE/OL technologies prior to teaching their first DE/OL class. Most of the participants (29%) reported receiving between 1 and 5 hours of training related to DE/OL technologies prior to teaching their first DE/OL course. Twenty-three percent of the respondents reported that they had received no training before teaching their first distance education class. Twenty percent of the participants reported receiving 20 or more hours of training prior to teaching their first DE/OL course.

In order to ensure that the participants held similar views regarding the meaning of DE/OL, they were asked to offer a brief definition of the expression. Most respondents offered similar definitions for the expression, although they were worded in various ways. The major concepts associated with DE/OL as reported by the survey respondents were the following: 1) use of electronic media (video conferencing, Internet and others), 2) teachers and learners are separated by time and/or space, and 3) interactions may be synchronous and/or asynchronous.

The survey respondents reported using a variety of electronic communication tools as part of their DE/OL environments. The survey offered a list of twelve items from which participants were asked to choose all that might apply. They also were asked to elaborate on any "other" tools they used.

The following is the list of twelve electronic communications tools included in the survey: 1) WebCT (adopted by the University of Georgia system as the recommended software for use in the creation of on-line courses), 2) GSAMS (Georgia Statewide Academic and Medical System, a proprietary videoconferencing system adopted and supported by the University System of Georgia), 3) web-based course materials, 4) Internet e-mail, 5) private e-mail system, 6) bulletin boards, 7) Internet newsgroups, 8) private conferencing software, 9) Listservs, 10) web-based course calendar, 11) chat rooms, 12) other.

Respondents were asked to indicate which communications tools they used during their first DE/OL course, and to indicate which tools they used during their most recent course. Forty-one unique combinations of communications tools were reportedly used during the respondents' first DE/OL course. Thirty-six unique combinations of communications tools were reportedly used during the respondents' most recent DE/OL course. Although many of these combinations of tools were reported by a single respondent, a clearer picture is possible by examining those combinations that were reported by more than a single participant. Figure 1 summarizes these data.

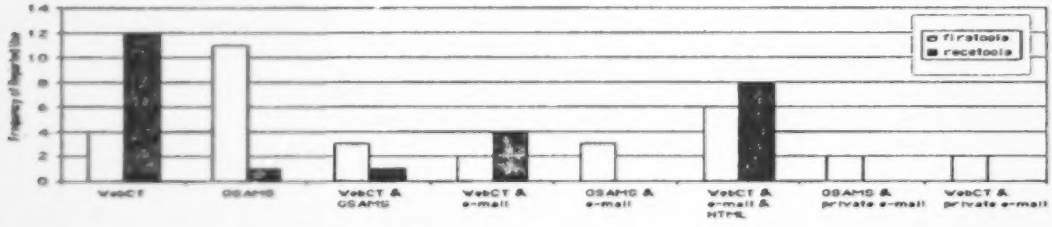

Figure 1. Change in Reported Electronic Tools Usage from first course taught to most recent course taught

Eighty-six percent of the survey respondents reported having taught the same course in both face-to-face and DE/OL formats. Of these, 22% reported preferring the face-to-face format, while only 10% reported preferring the DE/OL format. However, more than half, 53%, reported preferring to teach their courses using a mixture of both formats. Fifteen percent reported having no preference for one format or the other.

When asked which medium of instruction required the most time involvement, 89% of the respondents reported that DE/OL requires the most time involvement. Two percent of the respondents reported face-to-face instruction as requiring the most time involvement and 9% felt that the two media were equally time consuming.
The respondents were asked to estimate in two ways the additional amount of time they spent preparing for a DE/OL course. In terms of *additional time per week*, respondents reported spending approximately 5-10 hours per week

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longer preparing for a DE/OL course. In terms of *additional time per course*, respondents reported spending approximately 60 hours more teaching/conducting the DE/OL course. However, the variation in the responses was extreme, and very nearly as large as the average itself. The calculated average was 59.5 hours and the standard deviation was 56.5 hours. The range of responses was from 2 to over 300 hours of additional time spent per course.

Many respondents indicated that the amount of time required depended strongly on whether or not this was the first time the course was taught or whether it had been developed previously and merely re-taught. The typical response indicated that the DE/OL course did not require as much time to teach subsequently as it did the first time it was developed and taught, however no estimate of this time differential was possible from the data provided. These two estimates of the additional time required to teach using DE/OL technologies are somewhat inconsistent, but they provide a clear indication that it takes a significant amount of additional time to design and provide instructional experiences through DE/OL media.

Having worked with DE/OL instruction for many years, this research team has witnessed and experienced the value associated with combining traditional face-to-face instruction with DE/OL. As a result of our experiences, a question was included on the survey to probe the respondents regarding their perceptions of the value of face-to-face interactions as a component of courses that utilize DE/OL technologies. Eighty-one percent of the respondents indicated that they felt that their courses benefited by incorporating a face-to-face component. Nineteen percent of the respondents reported that face-to-face interactions were not seen as a valuable aspect of their DE/OL courses.

Respondents were asked which format, DE/OL or face-to-face, produced the better return (in terms of student learning or their perceptions of the quality of the instructional experience) for their efforts in planning and teaching their courses. The results are somewhat surprising but also reveal the complexity of this issue. Slightly over one-third of the group (38%) felt that a face-to-face format produces the "most bang for the buck". What is surprising about this is that these are the "pioneers" in using an electronic format for instructional delivery. One might imagine that they would be "ardent" supporters of these new technologies and would tend to see these new media as perhaps even more effective than can be demonstrated by hard data. However, such was not the case.

The next strongest view is held by those in support of DE/OL formats. Twenty-five percent of the group felt that DE/OL formats produce the greatest return on instructor investment. Fifteen percent felt that it depends upon the students. Eight percent felt that a mix of both face-to-face and DE/OL would produce the greatest return (recall that 53% *prefer* a course being taught as a combination of these two media). Seven percent felt that it depends upon the course. Five percent felt that both are equal in terms of return on the instructor investment. Three percent felt that it depends on both the course and the students. If we combine those subgroups that list students, course and course *and* students as conditionals, we see that 25% of the respondents feel that the relationship between the instructional format and the results that can be expected by that format depend upon the students involved and the nature of the course itself. One interpretation of these data is simply that these instructors recognize that a relationship exists between the student characteristics, the nature of the content to be learned in the course and the optimal instructional strategy(-ies) as manifest in the nature of the instructional experience that is attainable through particular media.

When faculty were asked why they were motivated to begin teaching through distance technologies a number of factors emerged. The most frequently mentioned was distance education provided students with more hands-on technology training opportunities (n=39). Other factors identified were distance technologies enhanced the quality of their courses (i.e., more up-to-date information) (n=36), the educational needs of students at a distance were provided (n=35), students' requests for distance classes were answered (n=32), more flexible working conditions (i.e., teaching from anyplace anywhere, electronic office hours) (n=27), more opportunities to interact with students (n=20), and some faculty were required to teach through distance technologies (n=17).

When asked to respond to the optimal DE/OL class size fifty-three respondents responded to the question. Responses varied with some indicating that it depended on the nature of the medium used (GSAMS vs. WebCT). Others indicated that it depended on the nature of the course and the students and the degree of interaction that is felt to be essential between the students and the instructor. The mean of the respondents' estimates was approximately 20 (19.8) students. The range was 43 and the standard deviation in the responses was approximately 8 (7.7). Based on these data, the optimal class size for a typical DE/OL course would be approximately 12-28 students. Given the respondents' considerable experience with DE/OL instruction (collectively, the respondents had taught nearly 300 courses in a DE/OL format) and the considerable variation in their responses, this figure would seem to represent a rather robust estimate that acknowledges the multiple extenuating considerations that attend the teaching of such courses.

Faculty identified a number of concerns they had with distance programs. The most frequently reported were providing release time to faculty who teach through distance technologies and offering more faculty support for classes (i.e., instructional design support, more training opportunities). Other problems that surfaced were

administrators not being aware of the time faculty spend planning and teaching through distance technologies, the need to improve the student orientation program for distance learners, providing more support for distance instructors such as graduate students and/or instructional designers, limiting the enrollment in distance classes, provide student access to computers for distance classes, the need for more planning before the delivery of distance courses, and improving the distance equipment for faculty and students.

Conclusions and Recommendations

Distributed Learning and On-Line instruction can provide a richer instructional experience, however, there are costs associated with this gain. If these media are used to provide more interaction with students, this requires more time on the part of the instructor. Therefore, the data from this study suggest reducing class size in these courses to enable students to have greater interaction with the instructor, factoring increased instructor effort into workload and personnel policies, and increasing support for faculty engaged in this effort. If support is lacking, then organizations can expect distributed learning efforts to be less interactive and potentially less successful. Face-to-face interactions with students are highly valued. When possible, instructors should use mixed instructional models. At this time, research on the necessity of face-to-face is unclear but its value may far outweigh its inconvenience or expense. It is suggested that instructors understand this need and provide appropriate media for appropriate aspects of the instruction. Arranging for physical meetings may be awkward when students reside a considerable distance from the instructor but such meetings may be critical to the success of the instruction.

References

Berge, Z.L. (Ed.) (2001). *Sustaining distance training*. San Francisco, CA: Jossey-Bass.

Cahoon, B. (1998). Adult learning and the internet: Themes and things to come. *Adult learning and the internet*. San Francisco, CA: Jossey-Bass.

Ely, E. (2000, June). Looking before we leap – "prior questions" for distance education planners. *Syllabi*, 26 & 28.

Hooper, K.B. (2001). Is the Internet a classroom? *Tech Trends*, 45 (5), 35-43.

Ko, S. & Rossen, S. (2001). *Teaching online – a practical guide*. Boston, MA: Houghton Mifflin Company.

Kearsley, G. (2000). *Online education – Learning and teaching in cyberspace*. U.S: Wadsworth Publishers.

McKenzie, B.K., Mims, N., Kirby, E., &Waugh, M. (2000, Fall). Needs, concerns, and practices of online instructors. *Online Journal of Distance Learning Administration*,(online), http://www.westga.edu/~distance/ojdla/fall33/mckenzie33.html

Phillips, R. & Merisotis, J. (1999). What's the difference? A review of contemporary research on the effectiveness of distance learning in higher education. *The Institute for Higher Education Policy*. April 1999. Retrieved November 5, 1999 from http://www.ihep.com

Piccano, A.G. (2001). *Distance learning – making connections across virtual space and time*. Upper Saddle River, NJ: Merrill Prentice Hall.

Schreiber, D.A. & Berge, Z.L. (Eds.) (2001). *Sustaining Distance Training*. San Francisco, CA: Jossey-Bass.

SPSS Advanced Models 10.0 (1999).Chicago, IL: SPSS, Inc.

Williams, P. (2000). Making informed decisions about staffing and training: Roles and competencies for distance education programs in higher education. *The Online Journal of Distance Learning Administration*, http://www.westga.edu/~distance/williams32.html

Faculty Development through Online Courses: Results from an Evaluation of the PT3 Netseminars

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Abstract: In the Spring of 2001, the Concord Consortium developed and conducted10 Netseminars that were offered to members of the PT3 community. The Netseminars were 6 week, scheduled asynchronous courses that were offered on Blackboard 5 courseware over the web. They covered a variety of topics, including online teaching and learning, supporting inquiry-based learning, using simulations, technology tools for assessment, and using technology to support spatial visualization. This paper summarizes the results from an online survey of Netseminars participants that was conducted by EDC's Center for Children and Technology. The survey yielded information about the demographic background of Netseminar participants, teacher educators' motivation for participating in an online course, as well as perceived effects on knowledge and skill with technology and teaching practice. Results are discussed in terms of their implications for the design and use of online courses for faculty development.

Introduction

Integrating technology into pre-service teacher education programs often requires intensive professional development for faculty, since many teacher educators have not had the opportunity to use technology in their own teaching. In providing professional development, technology itself plays an important role--both as a means to model exemplary use, and as tool to deliver instruction. Professional development that is delivered online through the Internet offers the unique advantage to be accessible across distances and independent of the time constraints of face to face meetings. Recognizing the potential of online learning for providing continued professional development to teacher educators, the Concord Consortium has begun to offer a variety of online courses, or "Netseminars" to the teacher education community. This effort has been supported, in part, by the Preparing Tomorrow's Teachers to Teach with Technology (PT3) Program (through a subcontract with the University of Virginia in Charlottesville) and the National Science Foundation (through the Center for Innovative Learning Technologies (CILT) Consortium).

Netseminar Overview

During the spring and early summer of 2001, the Concord Consortium was able to offer a total of 10 different Netseminars to the PT3 community. The Netseminar covered a variety of topics, including online teaching and learning, supporting inquiry-based learning, using simulations, using technology tools for assessment, and using technology to support spatial visualization. They were moderated by staff from the Concord Consortium and post-doctoral fellows based at several different CILT research centers across the U.S. With one exception, the Netseminars were designed as 6 week, scheduled asynchronous online courses (one Netseminar was conducted over a 12 week period). They were offered on Blackboard 5 courseware over the web, and followed a common format. Learning was organized around a variety of assignments (e.g., readings, evaluating resources, design of curriculum activities) and discussions among participants around those assignments. Participation was free of charge. A total of 106 PT3 grantees enrolled in the online courses.

Methods

The purpose of the evaluation was to collect information that would help to inform the refinement of the NetSeminars as well as to document their impact on teacher educators.

The Center for Children and Technology, in collaboration with the Concord Consortium decided to conduct an online exit survey to address the following for major questions:

- Who are the participants in the Netseminars? What is their demographic background? What experience do they have with technology?
- What motivates teacher educators to participate in a Netseminar, and how well do the Netseminars meet participants' expectations?
- How do participants evaluate different components of the Netseminar and their online learning experience?
- What are the perceived effects of participation in a Netseminar on teacher educators' knowledge about and skill with technology? What are the anticipated effects on their teaching practice?

The survey was made available through the world wide web. Netseminar participants were contacted upon completion of the online course and invited to participate the online survey. A total of 35 participants completed the survey, representing 33% of the teacher educators who originally enrolled in the Netseminars.

Results

1. Netseminar participants were relatively homogenous in terms of their demographic background and technology experience. Seventy-four percent of the respondents were female and 88% were white. Seventy-eight percent of the respondents were 41 years or older. All respondents (100%) indicated that they had used computer-based or other electronic technology in their teaching. More than half (57%) of the respondents reported that they had taken an online course before, and nearly half (49%) had taught an online course themselves.

2. We found that a variety of different factors played a role in teacher educators' decision to enroll in a Netseminar. Key considerations were the ability to gain access to professional development that is otherwise not available and to learn about new ideas in their content areas. Other significant factors were the opportunity to interact with and share with faculty from other colleges and universities, to learn from leaders in the field, to learn about technology, and being able to learn at their own time and pace as well as to learn more about the process of online teaching and learning.

3. Overall, participants' reactions to the Netseminars were very positive. Ninety-five percent of the respondents indicated that they would take another Netseminar. The Netseminar components that respondents found particularly useful include readings, interactions with the seminar leaders, review of technology resources, private feedback from the facilitator, and guest visitors. The components that the respondents found less useful were interactions with other participants, working in small or large groups, and getting feedback from other participants.

4. Participants indicated that they acquired a variety of technology-related knowledge and skills through the Netseminars. Three-quarters or more of the respondents reported that they learned strategies for online teaching, and developed an understanding of what it is like to learn online. Half or more of the respondents noted that their Netseminar helped them learn how to integrate technology into their teacher education courses, including teaching strategies, technology skills, what technology tools are available, and how to design technology-enhanced learning experiences. Respondents anticipated that what they learned will influence their professional practice in a number of different ways including: the design of their online courses and the use of online teaching strategies; the use of specific technology tools in teacher education and K-12 settings; the use of strategies for technology integration at their local teacher education program; the use of contacts with professionals in the field at other organizations to expand teaching and learning activities; and the articulation of professional development goals in relation to technology and the pursuit of further professional development opportunities.

Discussion

Online courses like the Netseminars can play an important role for faculty development, connecting teacher educators to professional development opportunities and resources that otherwise are not available at their organizations. Teacher educators have found them particularly valuable for preparing them for the design and facilitation of online courses as well as the integration of technology into their face-to-face courses.

The results of this survey suggest a number of ways in which the Netseminars could be refined to serve the needs of teacher educators even better. First, several of the participants noted that the workload was difficult for them to manage especially during a very busy time of the academic year (end of the semester and graduation). Offering the seminars over a longer period of time with a reduced number of hours of work required per week could help to make the learning experience more manageable for them. Offering the Netseminars during semester breaks or early during an academic semester when teacher educators have more time available may be helpful as well. Second, participants indicated that they would like to have more interactions with the other participants in their courses. A revised weekly schedule allowing more time for discussion and additional online activities that support interaction could help to facilitate more exchanges among participants. Third, only a small number of participants reported that they learned about technology use and integration in K-12 settings. Yet, learning about technology integration in teacher education can be enhanced if connections to the use of technology in K-12 education are made. Involving K-12 teachers alongside teacher educators in the Netseminars could facilitate valuable interactions along these lines. Finally, to reach the broadest number of teacher educators with the Netseminars, the diversity among participants needs to be increased. Recruitment efforts should be broad and reach out to teacher educators from traditionally underrepresented groups and those who have little or no prior experience with technology. To insure the retention of teacher educators who are hesitant to enroll in an online course, ongoing support may be necessary. One strategy could involve having small groups of teacher educators from the same program enroll together in a Netseminar to help to establish local support.

The Preparation of Alternative Licensure Teachers: Bringing Technology into the Classroom through Distance Education

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As K-12 schools continue to add initial technology purchases and upgrades to their yearly budgets, the need for professional development for teachers increases as well. With a diverse and often distant population, web-based technology courses speak to the needs of these learners. By providing web-based instruction, participants are able to log on and interact with the course material at a time that is convenient to their individual schedules.

This study looks at the use of the web as a way to provide technology instruction to alternative licensure middle and high school teachers. The course, Technology Tools for Science Teachers, offered as a graduate level course at North Carolina State University, provides web instruction in a number of technology-related areas.

The Learning to Use Technology web site was constructed during the summer and fall of 2000 with the topics for the site taken from suggestions made by the Cumberland County, North Carolina science teachers. The web pages that made up the instructional modules were structured based on research that focused on web-based instruction. Thibodeau (1997) suggested that the content of a web site should be broken down into smaller units of instruction and the screen design should be simple and uncluttered. In addition, Thibodeau contends that web-based instruction can "teach content at least as effectively as traditional instruction" and reduces a number of negative aspects associated with continued learning and the updating of teaching skills.

In the spring of 2001, the web site was the foundation for a North Carolina State 3 credit distance-learning course entitled, Technology Tools for Science Teachers. This course was structured primarily for the Cumberland County teachers, but was also open to lateral entry teachers who were working towards their teacher certification. An online syllabus was developed which contained links to all the instructional modules, which were broken down into weekly instructional units. Each unit of web-based instruction spanned a week to two-week period.

The teachers were asked to provide a computer with Internet access and demonstrate proficiency in the prerequisites that were presented to the teachers before the start of the course. These prerequisites included the ability to navigate the web, access to e-mail and the ability to send and receive e-mail messages. In addition, the instructor stressed the importance of scheduling the time necessary to devote to learning the course materials and completing the assignments.

With the exception of the four face-to-face meetings, the course was web-based in nature. A course of this type addresses both the time and place constraints that often hinder teachers' continued professional progress (Huntley & Mather, 1999). An additional advantage to web based courses is the reinforcement of technology skills that are necessary in today's society (Chute, Thompson, & Hancock, 1999).

In addition to the online instruction, the teachers were provided with a technology kit that included all the necessary software and hardware to complete the assignments associated with the course. The kits contained a digital still camera, a LabPro and Calculator-Based Laboratories interface, probes and sensors which were compatible with the LabPro and Calculator-Based Laboratories, and software which included

Dreamweaver 4, Adobe Photoshop LE, and much more. Vernier Software and Technology provided the LabPro and Calculator-Based Laboratories interfaces, probes, and sensors for 16 of the technology kits.

Besides allowing the teachers to complete the assignments, the technology kits gave the teachers hands-on experience with technology tools they could use with their students during the duration of the course. Teachers were also provided with a stipend, which covered the cost of the course, but were not notified of this until the course was in its final week. This reduced the possibility that teachers would sign up for the course because of the stipend involved which would give us a more representative set of teachers who may reflect the characteristics of future participants.

Assessment

The evaluation process transverses several phases:

- Pre-Survey-self report measure on their technological expertise.
- Meyers-Briggs Type Indicator (MBTI)
- Pretest and Post-Test for each instructional unit.
- Simmons Emotional Intelligence Survey
- Post-Survey- self report measure on their technological expertise.
- Web Portfolio of their accomplishments during the semester.

The pretest was used to determine previous knowledge as it related to each unit of instruction. WebAssign was used for the pretest administration as well as for several of the assignments and post-test administration. WebAssign is a web-based program that collects, grades, and provides feedback as a means for instructors to evaluate their students' progress. WebAssign can be set to provide student feedback in varying degrees. For this course, WebAssign was configured to provide only a grade to the student after the pretest was administered to the students.

A post-test was administered after each unit of instruction was completed to determine the level of knowledge acquisition from the start of each unit until it was completed. Feedback on the post-test was more elaborate in nature in comparison to the pretest and included a key as well as the student responses. This enabled the students to compare their responses to the correct responses for each question.

Also included as an evaluative tool were two to three assignments for each instructional unit. The completed assignments were delivered to the instructor in different formats that included e-mail file attachment, uploading a file to the listserv, using WebAssign, and uploading web pages to web space with the URL provided to the instructor via e-mail. The majority of the assignments and projects built on the previous assignments and culminated in a web portfolio that incorporated the majority of the skills developed during the duration of the course.

Results

Each student reported a gain in technological expertise from the administration of the pre-survey to the administration of the post-survey, a fourteen-week period. A gain was also noted in the content knowledge pre and post-test, which were developed for each instructional unit with the exception of one area in which they were already well versed. In addition, the overall student impression of the course was quite favorable. The comments focused on the ability to work at one's own pace and not spend time and money to commute to campus to participate in the course. The following are just a few of the positive statements made by the teachers in a final evaluation:

- I enjoyed the flexibility of the course.
- The course was very adaptable to my busy schedule.
- The web page resources were very helpful and informative.

The entrance survey also contained several open-ended questions, which asked the students about expectations for the course and whether they had participated in a distance-learning course previously. Out of 11 students, only four had previously participated in a distance learning type course, but they all had similar expectations. They wanted to become proficient in the use of technology so they could share this expertise with their students.

The exit survey also contained several open-ended questions. The first asked if the teachers would take another distance learning course. The second questioned whether their expectations for this course had been met. Ten of the 11 students responded that they would take another distance learning course and that their expectations for the course had been met or exceeded.

Personality variables were also measured with the use of the Myers-Briggs Type Indicator (MBTI) and the Simmons Emotional Intelligence Survey to indicate student success in the course. There were high correlations between personality characteristics and predictors of the success in the course. In addition, the degree of direction or self-motivation correlated highly with the level of benefit a student derived from the course. Lastly, a strong negative correlation was observed between self-esteem and the timely submission of assignments.

References

Chute, A.G., Thompson, M.M. & Hancock, B.W. (1999). The McGraw-Hill Handbook of Distance Learning. New York: McGraw-Hill.

Huntley, M. & Mather, M.A. (1999). Virtual Curriculum. Technology and Learning, 20 (2), 77-80.

Learning to Use Technology: Available online: http://www.ncsu.edu/sciencejunction/route/usetech/

Nielsen, J. (2000) Designing Web Usability. Indianapolis, IN: New Riders Publishing.

Thibodeau, P. (1997). Design Standards for Visual Elements and Interactivity for Courseware. T.H.E. Journal, 24 (7), 84-84.

U.S. Department of Education, National Center for Educational Statistics. (1999). Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers. NCES 1999-080, by Lewis L., Parsad, B., Carey, N., Bartfai, N., Farris, E., & Smerdon, B., Green B., project officer. Washington, DC: U.S. Government Printing Office.

A "distance scholarship" model for teaching and learning about technology supported assessments

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Abstract
The results of an innovative Netcourse are presented that sought to provide teacher educators with access to leading research-based and technology-supported tools for assessment. The course was delivered via the Web and Blackboard and featured a different assessment tool each week that teacher educators were allowed to try. The Netcourse seeks to address the preparedness of teachers to adopt assessments of complex learning using technology. With the wide variety of technology innovation taking place in schools, assessment remains one of the outstanding challenges that teachers and researchers face. At the same time, providing better and more timely feedback to teachers and learners and creating better technology-supported assessments is very effective a way to improve learning.

Overview
The work presented here was developed as part of the author's postdoctoral research with the Center for Innovative Learning Technologies (CILT). CILT is a distributed center involving SRI International, University of California, Berkeley, Vanderbilt University, and the Concord Consortium. The center serves as a national resource for stimulating research on innovative, technology-enabled solutions to critical problems in K-14 learning. The center is designed to leverage contributions from the country's top experts, regardless of institutional affiliation.

The Netcourse presented here leveraged expertise on the design and delivery of online courses (Concord Consortium) at the same time it provided access to leading research-based tools for assessment. Examples of technology-supported assessments that have been available for distant learners via the Internet include IMMEX (Underdahl, Palacio-Cayetano, & Stevens, 2001), Intelligent Essay Assessor (Foltz, Laham, & Landauer, 1999), Knowledge Mapper (Baker, 1998), and the Analysis Toolkit for Knowledge Forum (Lamon, Reeve, & Scardamalia, 2001). In each case, there is evidence that assessment-related information can be provided to teachers and\ learners in a way that supports understanding of learning outcomes.

The paper will provide pointers and a summary of each of these and how they were used in the Netcourse. In addition, numerous technologies are available that, perhaps subject to debate, are not directly based on teaching and learning research but that can still be used to support assessment (e.g, Inspiration for concept mapping, Profiler for tracking human resources, curriculum and standards mapping software, rubic-generating software, databases of reusable objects, and others).

By providing the opportunity to try various tools "safely" within a distance learning setting it was hoped that the teacher educators would then be able to re-use all or part of what they learned. This means they might re-use materials from the online course while teaching others about the tools (say in a university-wide training session) or they might try a version of the tools themselves with learners in their own courses, including in face-to-face sessions.

The Netcourse, hosted in Blackboard™ by the Concord Consortium, was entitled PT3411: Technology Supported Assessments (TSA). It was developed as part of a Preparing Tomorrow's Teachers with Technology (PT3) "catalyst" grant and utilized principles of online facilitation developed by (Collison, et al, 2000) and as taught in the course Moving out of the Middle. For TSA, the goal of moving out of the middle was accomplished by highlighting external resources and expertise, as well as participants' own analyses and use of these resources. The weekly "routine" was for each learner to first read about the research base for use of the particular assessment tool being studied. Then they would try it out and discuss the results. Sometimes they would be asked to discuss both prior to and after using the tool. This Reading, Activity, Discussion (RAD) format was intended to efficiently help learners identify their requirements and possible tools of interest. The discussion was shaped to help extract pragmatic lessons from each weekly assignment, and to begin to develop a broad and sharable (through conversation) understanding of available technologies for assessment.

Research Questions
While the course was not structured as a research project per se, the experience allows us to address a number of important research questions, such as those highlighted by Haertel & Means (2000). The problems facing educational researchers are often overwhelming (not allowing "clean" studies such as those done in other fields) and a key stumbling block is the perception, shared by teachers and others, that standardized and multiple choice tests more often than not do not meet the objectives of instruction (Ravitz, Becker & Wong, 2000). The rationale for the Netcourse is that it would accomplish two objectives: 1) developing the capacity for delivery of technology supported assessments, and 2) creating an audience of informed users in the educational community. Some key questions that are being addressed include the following:

1. **What kinds of technology-supported assessments are available via the web and where are they found?**
2. **What pedagogical framework supports teaching and learning about web-based tools in a Netcourse?**
3. **To what extent is the Netcourse viable as a vehicle for dissemination of technology supported assessments more broadly?**

4. **To what extent can user-centered Netcourses provide viable pilot test sites for the R&D community, while supporting the needs of the individual learners involved?**

5. **What kind of partnerships are envisioned between content experts, instructors, designers, and providers of Netcourses? What about between course developers and other users?**

6. **What web-accessible tools are ideal for side-by-side comparison of assessment techniques, e.g., examples that can be used in a classroom such as constrained vs. open-ended concept mapping techniques.**

Why Assessment?

Assessment is an important aspect of any educational innovation or reform. Often when another complex innovation is introduced assessment is used to help guide the teaching and learning process, shaping student self-monitoring and opportunities for learning. In fact, providing formative feedback to the learner may alone have a greater impact on learning outcomes than any other aspect of instruction. "Strengthening the practice(s) of formative assessment produce significant and often substantial learning gains . . . effect sizes are larger than most of those found for educational interventions" (Black & Wiliam, 1998, pp. 140-141). Formative assessment, where feedback is given to learners in time to make a difference, can help learning for all students. Black and Wiliam write that such assessments can help low performers most, while still benefiting all students: "Improved formative assessment helps low achievers more than other students . . . while raising achievement overall" (p. 141). There may also be a "pedagogical divide" so that teachers of high achieving students are more likely to offer opportunities for innovative technology assessments, while prescriptions for routine assessments are offered to those who are less able to pursue innovative pedagogical uses of technology. The Netcourse seeks to address the preparedness of teachers to adopt assessments of complex learning using technology.

Why technology?

As Internet connectivity becomes more and more ubiquitous in schools, teams of researchers and educators have been developing ways to use technology to help create improved systems for learning and assessment. This includes new activity structures and new social structures that will make instructional tasks more meaningful and learning deeper. The challenge for schools of education is to effectively model these types of uses of technologies in their own courses.

Technology can be an extremely effective tool for giving feedback during the learning process to learners and their teachers. The ability of technology to rapidly provide feedback to learners is one of its most salient features for education. Consider how quickly young people learn complex video games by being bombarded with constant feedback on their performance that proves to also be highly motivational. Examples from the educational research community include simulations, dynamic modeling tools, teachable agents, and other tools that give students and teachers tools they can use as feedback on their thinking. Some allow students to view consequences of their actions on the screen in near real-time and then provide tools for students to modify their thinking and test the results again. The assessments that are provided are valued over traditional "right vs. wrong" judgments because they facilitate analysis of student reasoning processes.

What is Distance Scholarship?

Learning is generally viewed as a process of individual enlightenment and insight. As a result, our traditional models of teaching do not help students share these insights in a meaningful way with others, i.e., in a way that would generate real value from their hard-won knowledge. Instead, we typically teach and test in order to demonstrate individual competencies, focusing on internal processes within the learner, in isolation from others. Alternatively, we do our own personal learning and then have no mechanism for sharing. At an organizational level, this means that once a problem is solved, its solution is invisible for all others.

The goal of distance scholarship is to encourage distant learners to try out ideas that seem relevant to them and to report the results back for use by others. Given the capabilities of the Internet to foster communication and to provide structures for sharing and collaboratively developing knowledge, it is simply not acceptable to continue focusing our efforts on producing individual knowledge and competencies with no apparent relationship to a broader community of investigators, be they teachers, learners or researchers. If there is frustration with the lack cumulative progress in educational research, the solution is not in the publication of better research reports and evaluations, but it lies in changing the very structure of projects to support the dissemination of new ideas within and across them. The Netcourse provides a vehicle for identifying, delivering, and spreading key ideas and tools across communities of educators, really in an unprecedented way. The proposed model of learning places ideas into a public arena, subjecting them to critical evaluation and peer-review, and seeks to put them into a form that can be used or built upon by others. This Netcourse demonstrates how emerging technologies can play a key role in this process.

The focus is on finding exemplary tools that open up new avenues for teachers and finding a way for sharing this information with teacher educators. What makes this approach called "distance scholarship" is that as a result people are trying ideas in different settings and sharing the results in a way that is useful to others. This contrasted to a more atomistic view of distance learning that does not privilege use of solutions found by others. The Netcourse provides a vehicle for social filtering (Wiley, et al, 2001) of assessments and other learning objects, but including this as the pedagogical focus of the Netcourse is an innovation, and one that builds on prior instructional use of web-based evaluation tools (Ravitz, 1995; 1997). The unique course structure also allowed experts and technical support personnel from the research centers to be notified when opportunities for intervention presented themselves.

Web-Based Tools For Teachers
SITE 2002 Short Paper Proposal

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In addition to being a rich information resource, the web provides access to many time saving tools for teachers. As faculty members, we've found these tools useful for our own personal productivity and instruction. This short paper session will provide an overview of some of the most useful tools in the following categories:

Bookmark utilities. Bookmark utilities make it possible to access bookmarks or favorites from any computer connected to the internet. They also make it possible to easily rename, annotate and organize bookmarks. An example in this area is Backflip (http://www.backflip.com).

Rubric generators. As K-12 education and higher education move toward outcomes and performance based assessment, different assessment models need to be developed. Rubrics have become one of the most popular methods of assessment. Several sites on the web provide downloadable rubric templates (http://landmark-project.com/classweb/tools/rubric_builder.php3, http://www.ncsu.edu/midlink/ho.html), while tools such as Rubistar (http://rubistar.4tea.hers.org/) allow users to generate rubrics online.

Test generators. Online puzzle makers have been available on the web for several years and they are popular with teachers. Web sites such as Quia (http://www.quia.com/) allow users to produce tests, activities and web pages online.

Survey generators. Surveys are a popular data collection tool with many opportunities for use in a K-12 environment. Zoomerang (http://zoomerang.com/) allows users to create and collect data using a simple, free online survey process. Profiler (http://profiler.hprtec.org/) is an online collaboration tool specifically designed to help individuals within a school assess technology skills.

Weblogs. Weblogs (http://www.weblogs.com/about) are can be used to promote current awareness of any subject. Serious Instructional Technology (http://instructionaltechnology.editthispage.com/) is an example of a weblog in the field of instructional technology.

Example of resources in each category will be briefly demonstrated and discussed in terms of their application to teacher education and teacher education faculty personal productivity. A complete webliography of all sites presented will be provided.

The WebQuest as an Instructional Strategy

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The 21st Century is an age of Edutainment where students want to be entertained when obtaining knowledge. The more involved a student is in the teaching/learning process, the more knowledge he/she will obtain. Brain research, media, video games, technology and interactive computer programs provide information about how students are motivated to learn. The Dale Cone shows that the least effective way to learn is the lecture. According to Edgar Dale direct, purposeful experiences promote greater knowledge. The days of lecturing, taking notes, and rote assignment are over. New instructional methods that have emerged during the past few years include cooperative group work, hands-on activities, use of manipulatives, building/ making models, videos, interactive computer software, and Internet research. These all have their place in the age of Edutainment.

The WEBQUEST is a new method of instruction that has emerged from Internet research. The blanket "just go look on the Internet" method of instruction has several weaknesses. Students who merely surf the Internet end up "chasing rabbits". The student gets so much information that he/she loses sight of the research objective. Information given is so broad that students have trouble sifting through it to decide what is useful. Determining whether the Internet source contains true or reliable information is another problem. Students tend to believe that everything on the Internet is true. Also, students have limited time in the computer lab and may not have access to technology in the home to continue this research. Another weakness is accessing appropriate sites. Although schools have filters, students can still contact some inappropriate sites.

A WebQuest is a guided research activity that addresses the weaknesses of using the Internet for research. WebQuests are constructed as inquiry-oriented activities that encourage higher-order thinking skills. Other traditional research sources can be used in conjunction with the Internet. A WebQuest activity is considered an inquiry lesson by which students obtain knowledge through investigating facts as directed by the instructor. Advantages of using a WebQuest include: 1) students are directed to web sites whose primary focus is information to be used in the WebQuest, 2) the objective of the research is in constant view, 3) the amount of information is limited, 4) information is true/ reliable, and 5) a student may stop and start at will and always locate the information sites. The WebQuest "fits" into the Edutainment Age that is motivating to students. WebQuests can be on any subject/topic.

The objective of the WebQuest is the end product as determined by the instructor. An instructor can motivate student work by directing the inquiry, i.e. setting up a mystery scenario interests the students to discover answers. Using a journalistic approach, students assume the roles of investigator, reporter, editor, etc. The instructor uses a grading rubric to ascertain specific objectives have been met as students progress through the tasks.

This Tutorial Session will define a good WebQuest, show examples of WebQuest, and demonstrate how a simple WebQuest is designed. Examples from different disciplines will be shown to demonstrate the usefulness of a WebQuest in the classroom.

Facilitating Teacher Collaboration in On-line Environments

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Abstract:
The research study set out to ask what part can be played by well-researched and designed on-line activities in shaping the future of, and meeting the needs of, teacher professional development. Over time the community of practice (Lave & Wenger 1991) emerged as a complex yet attractive solution and the focus of the research clarified to mapping the development and efficacy of a web-mediated community of practice in advancing implementation of an innovation. This research explores how a Web-based network can become a community and in what ways this community can support the professional needs of its individual members? The StageStruck On-line Community http://www.stagestruck.uow.edu.au is the focus of this study and its development raises a roster of important issues as the theory of communities of practice is applied to a specific case of on-line teacher professional development.

Defining the community

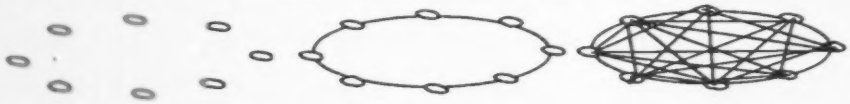
The StageStruck On-line Community is the result of an action research program in which in-service teachers are being offered professional development towards implementation of an innovation. The research examines the classroom practices of teachers of the performing arts and their adoption of a CD-ROM based knowledge construction tool (Hedberg, 1997) *StageStruck* developed by the partnership of the University of Wollongong's *emLab* and Australia's National Institute for the Dramatic Arts *(NIDA)*. This paper is a bounded history of the research project to date. The full background to the selection of on-line community for delivery of professional development in this study is detailed in Stuckey & Hedberg (2000), Stuckey et al (2001a). Suffice it to say that through the study of the literature and available cases, the community of practice (Lave & Wenger, 1991) emerged as a nexus between best practice in professional development, innovation and pedagogical use of on-line technologies. What is unclear is whether community is really required in all of the situations that we see it applied. Would another form of connectedness better serve teacher needs, the specific context, the developer return on investment and the time available to all?

It also remains to be seen whether a 'true' community can be established for distributed classroom teachers through a wholly web-based structure. The concept of community, while widely viewed as very marketable, is falsely portrayed by the owners of many on-line architectures. The cautionary tale about community is perhaps best articulated by Grossman & Wineburg (2000, p.6) when they offer a warning about the confusion created by a proliferation of different uses of the word 'community'. *This confusion is most pronounced in the ubiquitous "virtual community", where, by paying a fee or typing a password, anyone who visits a web site automatically becomes a "member" of a community.*

It has become clear that not all groups meeting on-line are communities and that the term 'virtual community' is a misnomer. True communities are much more than just Web sites, communication tools or gatherings of people. Communities require member participation and contribution, ownership, quality support and facilitation, shared direction, goals and projects (Wellman & Gulia, 1997; Palloff & Pratt, 1999; Kim, 2000). They are an investment in time and nurturing. That old adage of 'if you build it they will come' certainly does not apply to community, for it is the members who create the community not the web site developers. Stuckey et al (2002) identify and propose distinctions between current Internet-based architectures that are self-declared as communities and explore the ways these architectures serve teacher education. It is known that connecting teachers is key to successful knowledge and change management. *Educators are "islands of excellence" with no ferry service to connect them to each other or to groups of their peers.* (Reilly 1999 pp.60) Reilly's statement describes the problem that exists for in-service educators, where in reality, they find themselves operating in isolation once the door to the classroom closes. That 'ferry' Reilly speaks of might variously be put into service for widely distributed individuals through on-line technologies. Whether the ferry service in this case it is the simple network or a richly interpersonal community environment is what remains to be seen.

Developing the community

At present stage of development they represent a potential community. Andrews (2001 pp.1) describes these potential groups. *Demographic groups normally do not constitute communities. However, they have the potential for becoming on-line communities when individuals share common interests, needs and goals, have a desire to communicate with a peer group, and can easily find each other to establish relationships.* The StageStruck On-line Community is taking the demographic group of K-12 teachers of the performing and creative arts and linking them together firstly through an on-line network then through to an opportunity to build community with active facilitation and support.



demographic group (DG) > **network** (N) > **community** (C)

distributed individuals *loosely tied individuals* *interpersonally tied group*

Diagram 1: The forming of lines of communication between individuals in on-line environments

The group being formed at the centre of this research did not exist before people were drawn to become members on-line. They are each member of other communities and may have ties through these to some members but no one community already exists to ties all the teacher groups (primary, secondary, drama, dance, design, creative arts, English) together. They do constitute a demographic group with the potential to become a community if ties can be effectively established.

It has taken two years in planning and web design and development and promotion to get to what Wenger (1998) describes as the second phase of community development; Coalescing. The plan for community development and the period of research is shown in Table 1. The focus of 2000 was the research, literature review and study of cases of on-line professional development and the design of the web site in response to teacher needs and concerns. During this year contacts were made and groups identified that might be integral to design of and dissemination about the community site. Finding out just who is in this demographic group has proven to be an ongoing task. In 2001 the development of the architecture became the focus. Time was spent in promoting the site and reaching out to teacher groups to elicit membership and teacher concerns about focus innovation CD-ROM technology. Establishing a critical mass of members for the network and connecting those people through the web site has taken much longer than was anticipated in this phase. In 2002 members will see the main activity, communication, collaboration and facilitation targeted specifically toward community building.
Table 1 maps the research program and the community development against the Wenger Community of Practice (CoP) stages of development. Wenger describes the typical evolution of community and the facilitator activities that promote community development at each of the stages.

	FOCUS	TASK			CoP STAGE
2000 (DG)	**Research**	Analyse	• Needs • Access		
		Design	• On-line environment • Interactions		
2001 (N)	**Infrastructure**	Establish	• Network • Members • Concerns		1st stage *Potential*
2002+ (C)	**Community Building**	Build	• Interest & value • Sociability & trust • Relationships & identity	• Interaction • Collaboration • Joint artifacts	2nd stage *Coalescing*
2003		Evaluate	• Concerns • Levels of use • Roles	• Interaction • Collaboration • Artifacts	3rd stage *Maturing*

Table 1: The development timeline for StageStruck Professional Development Community

The site remained largely as it was for the first six to eight months of 2001. While registrations had grown steadily involvement had not. It has taken a very personal face-to-face and one-to-one approach to elicit the initial teacher contributions. Teachers registered on the site were each approached by email to ask their experience level with StageStruck and their interest in being a contributor. Teachers described themselves as *newbie*, *experimenter* or *expert* in using StageStruck. No-one identified him/herself as an expert so the experimenters became the targeted participants for this stage. The *experimenters* were encouraged to explore ideas for contribution to the site. Email communication, neither broadcast nor personal, was working as the way to communicate and encourage these members. So meetings and phone calls were scheduled where time and geography allowed. It was decided to tap into some of the existing communities that teachers belong to and to attend functions and workshops at these to promote involvement on the Web site. The need for this type of active leadership or facilitation was noted in the early work of Hiltz & Turoff (1981). The requirement for personal communication from the coordinator is also borne out by the research findings of Cothrel & Williams (1999 p.23) when they studied 15 different on-line communities. They state as part of their findings that; *Often community managers would place phone calls to the individuals who they wished to participate in the community. One organization created a "social weaver" role, responsible for initiating a small number of members into the group.* Such roles are key to bringing (and keeping) people on-line. This personal approach and face-to-face activity seems even more critical when the community has no existing ties or relationships to rely on, as is the case here.

Most recently activities and events have been structured to focus teacher attention individually on each of the parts of the site and how these might be used. A team of 'experimenters' has been formed to develop an Innovation Configuration Map (Heck et al 1981) for StageStruck, working wholly on-line. This innovation configuration map will describe what classroom practice using StageStruck looks like as teachers move towards implementation. The kernel for the map was created through focus group meetings with the original designers and developers of StageStruck and now the map moves into the hands of the *experts* and *experimenters* for fleshing out and a classroom reality check. It is planned for this collaborative writing activity to begin in February of 2002 and for a draft map to be in place in March for teacher self assessment and professional development planning. The development of this map will be an iterative process throughout the year. The final map will be employed as an evaluation tool in the research project to gauge and describe teacher use of StageStruck.

What lessons have been learnt to date?

A raft of questions has arisen from the research and infrastructure stages of the StageStruck On-line Community to date. These questions can best be summarized under three major issues: *Access*, *Readiness* and *Culture*.

Access

Issues surround access to hardware within the school and at home, to the speed of the connectivity (school and or home) and the time available for personal professional development.

A recent Australian survey of teachers and the Internet (Schoolsnet, 2000) suggests that the most likely point of school access to the Internet is still the school library rather than classrooms. Administration areas and staffrooms were found to be the next likely points of access. While this lack of access is changing rapidly in Australia, as networking within schools becomes a priority, it does show that we have still not reached a point where teachers have reliable personal access to the Internet. Indeed teachers in this particular demographic are some of the least likely to have ready access to technology.

Is school technology adequate to support teacher involvement in on-line activities? Surveys suggest that in Australia 61% of teachers have Internet access in their homes. It is yet to be established definitively whether teachers are more likely to access professional development from school or home, but early evidence from the StageStruck site logins suggests that most access to the Internet outside school hours. In 2002 this study will report on how access to technology affects patterns of involvement and contribution and whether school and/or home technology can adequately support teacher involvement. Teachers in the community will be surveyed and individual access to technology mapped against community involvement. The issue of how much individual contact is required to maintain involvement will also be monitored. Technical and time management guidelines are being developed January 2002 to assist teachers to effectively and efficiently communicate on-line.

Readiness

Teacher readiness issues surround community as an untraditional and less formal professional development structure. Unfamiliarity coupled with the newness of on-line learning itself and teacher preparedness, or lack there of, for open communication, sharing and collaboration will all be factors in teacher readiness for participation in an on-line community of practice.

In 1998 the New South Wales Department of School Education offered an on-line course in information skills. When advertised across the state the response from teachers wanting to be involved was overwhelming. Completion rates in the first cohorts were heartening and the feedback from participants was very positive. However this was a predetermined formal on-line training event held over five weeks. How prepared and motivated are teachers for less formal and more self-directed and multi-directional on-line involvement?

It is the impact each of these readiness issues, and more probably the combination of them, that stands to confound the outcome of this research. It is planned to include questions related to past experience and motivation in the mid-year and final semi-structured interviews to determine how level and type of previous on-line experience relates to member contribution and learning. There is some clear anecdotal evidence from experience in previous on-line projects that, upon completion of student projects and after some reflection, teachers find project activity to have been very effective informal personal professional development. Teachers report on the skills and confidence they themselves have developed through supporting the student involvement and being able to learn along with their students. In February 2002 structured projects are being offered for students to engage in. It is envisaged that these projects will motivate further involvement from the teachers and draw them to other teacher-specific areas of the site.

Culture

Cultural issues of the teaching profession surround a depressed professional status; a need for incentives, recognition and accreditation for self initiated professional development and the teacher conception of the Internet as a consumer technology.

The Schoolsnet survey suggests that teacher at-school use of the Internet is largely for research (86%) and email (73%). At home use is primarily email, Web and research. Teachers perceive the Internet as a consumer and sometimes publishing technology. Teaching and professional development programs have largely supported this perception through a continual focus on resource retrieval. Teachers need to be supported to overcome a resistance to new ways of using the Internet and commit to communicating, collaborating and contributing in order for on-line community to even have a chance of delivering effective professional development. Focus group discussions with teachers have indicated that they are

concerned about recognition and accreditation for time spent in activities on-line. In early 2002 it is intended that the StageStruck site will offer certificates for hours of on-line activity, whether seeking or answering, linking or mentoring, joining discussion or leading activity. To this end we are currently investigating precedents for equating on-line time and contributions with hours of professional development. As part of this investigation insights are been sought from similar face-to-face teacher professional associations and groups to see what parallels can be drawn between their development and the planned growth of this community.

As of December 2001 the StageStruck Online Community hosts a network that had not yet developed the hallmarks of community (Stuckey et al, 2001b). Facilitator/researcher focus for 2002 is on the member uptake of opportunities to contribute and the adoption of roles and development of strong ties, which will allow it to be labeled a community. It remains to be seen whether it will show signs of developing into a true community or whether while operating as a network it might still ably meet teacher professional development needs.

References

Andrews, D., Preece, J. & Turoff, M. (2001). A Conceptual Framework for demographic Groups Resistant to Online Community Interaction. *IEEE Proceedings of the Thirty Fourth Hawaii International Conference on Systems Sciences* http://www.georgetown.edu/faculty/dca4/article-ijec.html [Accessed Dec 22nd 2001]

Cothrel, J. & Williams, R. (1998). On-Line Communities Getting the most out of on-line discussion and collaboration. *Knowledge Management Review* Issue 6 January-February '99

Grossman, P. & Wineburg, S. (2000). What Makes Teacher Community Different from a gathering of Teachers? An Occassional paper Document 0-00-1, *Center for the Study of Teaching and Policy*, University of Washington.

Heck, S., Stiegelbauer, S.M., Hall, G. & Loucks, S.F. (1981). Measuring Innovation Configurations: Procedures and Applications *R&D Report No 3108* University of Texas at Austin

Hedberg, J.G. (1997). *Creating Motivating Interactive Learning Environments*. Invited Paper to the Conference on Technological Education and National Development. Abu Dhabi, April 6th to 8th, pp. 203-218. Available http://crm.hct.ac.ae/020hedberg.html [Accessed Dec 22nd, 2001]

Hiltz, S.R. & Turoff, M. (1981). The evolution of user behavior in a computerized conferencing system *Communications of the ACM*, 24, 11, (Nov., 1981), 739-751.

Kim, A. J. (2000). *Community Building on the Web: Secret Strategies for Successful On-line Communities*. NY Peachpit Press

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral practice*. New York: Cambridge University Press.

Palloff, R.M. and Pratt, K.P. (1999). *Building Learning Communities in Cyberspace: Effective Strategies for the On-line* The Jossey-Bass Higher and Adult Education Series

Reilly, R.A. (1999). EdNet@Umass:Providing Quality Professional Development via the Internet. *The Journal Technical Horizons in Education* March 1999 v26 p60

Schoolsnet Australia Pty Ltd (2000). *Teachers & the Internet* http://www.myinternet.com.au/corporate/index.html [Accessed Dec 22nd 2001]

Stuckey, B., Hedberg J. G. (2000). Building on-line community: the way forward for professional development In R. Sims, M. O'Reilly & S. Sawkins (Eds), *Learning to Choose: Choosing to Learn* (Short Papers and Works in Progress). Lismore, NSW: Southern Cross University Press.

Stuckey, B., Hedberg J. G. & Lockyer, L. (2001a). Professional Development Online - Doing IT Pedagogically. In J. Price, D. Willis, N. Davis and J. Willis (Eds.) *Proceedings of SITE 2001 Society for Information Technology and Teacher Education*. (pp. 2439-2444). Norfolk, VA: Association for the Advancement of Computing in Education.

Stuckey, B., Hedberg, J. G. & Lockyer, L. (2001b). Growing an on-line community of practice: Community development to support in-service teachers in their adoption of innovation. *Proceedings of the Improving Student Learning using Technology Symposium*, Edinburgh, Scotland September 8-11, Oxford Brookes University (in press)

Stuckey, B., Hedberg J. G. & Lockyer, L. (2002). The Place of Internet-based Architectures in Supporting the Professional Practice of Teaching. In J. Price, D. Willis, N. Davis and J. Willis (Eds.) *Proceedings of SITE 2002 Society for Information Technology and Teacher Education*. (in press). Norfolk, VA: Association for the Advancement of Computing in Education.

Wellman, J. & Gulia, M. (1997). Net Surfers Don't Ride Alone: Virtual Communities as Communities. In M. A. Smith., & P. Kollock, P. (Eds.) *Communities in Cyberspace*. London: Routledge.

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. New York: Cambridge University Press.

"Teaching Online Changed My Teaching and My Life": Reflections Among Teacher Education Faculty

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Abstract:

Institutions like Webster University (St. Louis, MO) are increasing the number of 100% online (Internet-based) courses and programs in teacher education. How does online teaching affect instructors' view of themselves, their teaching, their students, and the learning environment? This paper summarizes the individual emotional and cognitive changes that instructors reported after receiving training for teaching online and developing and teaching at least one 100% online course. Common themes include: improved understanding of course content and design; raised expectations for student autonomy and quality of student work, and increased professionalism and formality. Changes in instructors' views carried over to the on-campus classes. The implications for program development, faculty development, and the possible development of new norms and sub-cultures are examined.

Paper Summary

Introduction

Like many teacher education institutions, the School of Education at Webster University (St. Louis, MO) has been increasing the number of 100% online (Internet-based) courses and programs. Currently (Spring 2002 Semester), the School of Education offers 20 online courses, and two Master of Arts in Teaching (MAT) degree majors that may be completed entirely online. Faculty who teach online courses receive training to work with the online teaching tools, and they develop or redesign their courses for online delivery. Do instructors' experiences in preparing and teaching online courses change their views of themselves, of their teaching, of their students, or of the learning environment? This paper reviews the individual emotional and cognitive changes that instructors reported after receiving training for teaching online and developing and teaching five 100% online courses in the last three years.

Procedures

As part of the evaluation of new online initiatives, the School of Education's online instructors who received training for online teaching and who had developed and taught at least one 100% online course were invited address the following questions on a written questionnaire:

1. Has the online teaching experience changed or influenced your teaching? If so, How?
2. Has the online teaching experience changed how you relate to others, including students, other faculty, family, friends? If so, How?
3. Has the online teaching experience changed your thinking or your perception of reality? If so, How?

The responses as well as oral elaborations were discussed at department and School-wide faculty meetings.

Results and Discussion

Among the 23 instructors who met the qualifications, 16 instructors (7 full-time, 9 adjunct) completed the questionnaire. Preliminary results include the following:

- All instructors report a notable change in their teaching. (Question 1) Examples of types of changes described are: "I learned how to teach online;" "After teaching online, I had to reorganize my face-to-face courses too." "I learned a new way of thinking about course design and instruction." "I found teaching online to be so much more focused and effective—I might want to do all of my teaching online."

- Four instructors reported that the online teaching experience changed how they related to others. (Question 2). The other 12 instructors reported no change in their relationships. Changes described include: "I feel like I have a window into the students' mind;" "I learned that there are some students whose personalities or learning styles are not suited for online courses. There are also some instructors who should not use this media." "Because I get much deeper level discussions online, I think I now expect a higher standard of my students in both online and on-campus classes."

- Two instructors reported that the online teaching experience changed their view of reality. (Question 3) The other 14 instructors did not comment on this. One instructor elaborated on how online courses places students and instructors alike in a new social and academic environment and culture. The norms and expectations for what occurs in an online course are defined anew when compared to the norms of a campus course. The other instructor described how online teaching was part of a "transformation of academia" in which technology mediates and permeates all activities in higher education, from keeping appointments on PDAs and conducting advising by email, to teaching and conducting research entirely online.

Learning to teach online, in particular 100% online courses, involved more than adding to one's repertoire of teaching techniques. For all instructors, it was a significant professional development experience that expanded their understanding of curriculum design, and instructional principles. Every instructor devoted many more hours per week preparing and implementing the online course compared to the preparation and delivery of other new campus-based courses. The extensive preparation time was generally viewed as negative, but counterbalanced by the professional growth and gratification from valuable learning. Instructors described applicability of their new learning to curricular or instructional designs of the their campus courses.

The second and third questions aimed to elicit more personal reflections. The responses to these items may have been limited because personal information is still considered taboo for open discussion. Most instructors did not attribute profound personal change resulting from the online teaching experience. The impact of the online teaching experience upon oneself may be subtle and difficulty to observe. Or, one may resist acknowledging a personal transformation in an academic community that would probably eschew such a reaction as less than rational.

The wide range of responses combined with the already divided views among the faculty about the desirability of online courses and programs, may be reinforcing the divide in the School community between faculty who teach online courses and those who do not. If the interpersonal relationship changes that faculty reported were to extend into the School community, we may expect emerging norms such as increased personal autonomy and responsibility, more formal relationships, and lowered tolerance for unfocused expression. It is possible that these and other norms that emerge among the online faculty and students will begin to define a distinct sub-culture or counter-culture within the School of Education.

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Collaborative Learning and the Online Learner: Do Those Who Choose Online Delivery Want Collaborative Learning?

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Abstract: When the courses were designed for the online Masters Degree in Educational Technology at Northern Arizona University, they were designed with various approaches that require collaboration among the students. This approach in online course design was based on research in designing effective online learning environments and on constructivist learning philosophies of the faculty. This need for collaboration that seems to be so vital for online environments and the general inclusion of this technique in the courses for this degree brings up two very key question: Do online learners have certain profiles that would make collaborative learning a less desirable technique for them? Are we forcing them into an instructional technique that they find exceptional difficult and undesirable? This paper reports on a initial research project that begins to shed light on these two questions.

Introduction

In the Spring of 1999, The Center for Excellence in Education at Northern Arizona University (NAU) began an online Masters Degree in Educational Technology (M.Ed. in Ed. Tech.). In designing the courses for this online degree, the faculty, with knowledge of the need for collaborative learning in online environments, designed the courses with various approaches that require collaboration among the students. This need for collaboration that seems to be so vital for online environments and the general inclusion of this technique in the courses for this degree brings up a very key question: Do online learners have certain profiles that would make collaborative learning a less desirable technique for them? Due to our limited knowledge of the dynamics of this instructional technique are we placing the students into an environment that is too difficult and problematic for them to be successful?

The California Distance Learning Project (1997) reviews some of the research on successful students in distance education programs and suggests that students who are attracted to this form of education share certain characteristics. They

- Are voluntarily seeking further education
- Are motivated, have higher expectations, and are more self-disciplined
- Tend to be older than the average student
- Tend to possess a more serious attitude toward their courses.

Pratt (1996) research indicted that an introverted person would probably become more successful online, given the absence of social pressures that exist in face-to-face situations. Conversely, extroverted people may have more difficulty establishing their presence in an online environment, something that is easier for them to do face-to-face (Pratt, 1996). Palloff and Pratt (1999) state that online learning can provide an educational experience that helps motivate students who appear to be unmotivated because they are quieter than their peers and less likely to enter into a classroom discussion.

Although these data provide baseline information on the type of students that are attracted to online learning environments, the authors of this study and faculty in the M.Ed. in Ed. Tech believe that greater information is needed to understand the learning preferences and characteristics of engaged students. For example, what are these students *motivated* by, what are their *higher expectations*, and how do they use or manage their *self-discipline*?

New Student Perceptions Of The Online Learning Environment

Students entering the Online M.Ed. in Educational Technology at NAU submit a battery of self-report instruments to help the faculty better understand their perceptions and expectations for learning in this new environment. One such instrument is the Motivated Strategies Learning Questionnaire (MSLQ: Pintrich, Smith, Garcia, & McKeachie, 1991). The MSLQ is a self-report instrument where learners rate their motivation and cognitive and metacognitive strategy use for a specific course. This instrument was administered to students enrolling in the M.Ed. in Ed. Tech. degree program to gain insights into students' feelings about motivation and strategies for that specific course. The MSLQ has fifteen different scales that can be administered individually or together with modular design to fit the needs of the researcher. Analysis by the author of the MSLQ scales reported only moderate correlation with participants' final grade. However, the Cronbach's alphas or p-values ranging from .52 to 93 suggesting that they have reasonable between factor validity.

To gain a better understanding of students' expectations regarding peer collaboration as they entered the program, individual items from two scales where analyzed, **peer collaboration** and **help seeking** – as it relates to peer collaboration. The results in Table 1 provide some interesting findings. For example, students reported below the median of 4 in the 7-point likert scale that they would try to work on their own – even if having trouble. However, when seeking help the means seem to indicate that if they did seek help, it would probably be first from the instructor and then individual peers. When examining student means concerning peer collaboration the means for all three items where noticeably lower than the help seeking means. This would give some indication that students, even though they would seek help if needed, may be less apt to engage in peer collaboration upon entering the online degree program.

Items	Mean	SD
Help Seeking I ask the instructor to clarify concepts I don't understand well.	6.200	1.103
Help Seeking I try to identify students in a class whom I can ask for help if necessary.	5.613	1.610
Help Seeking When I can't understand the material in a course I ask another student in this class for help.	5.507	1.446
Peer Collaboration I try to work with other students from a class to complete the course assignments.	4.811	1.685
Peer Collaboration When studying for a course, I often try to explain the materials to an online classmate or friend.	4.707	1.944
Peer Collaboration When studying for a course, I often try to set aside time to discuss course material with a group of students from the class.	4.547	1.596
Help Seeking Even if I have trouble learning the material in a class, I try to do the work on my own without help from anyone. *(Reversed Item 7 = Not At All True of Me; 1 = Very True of Me)*	3.740	1.633
N=75	1 = Not At All True of Me; 7 = Very True of Me	

Table 1: Mean and Standard Deviation for specific items of the MSLQ survey.

Rationale For Building Collaborative Learning Activities

Nipper (1989), a relatively early writer in the area of computer mediated distance learning discussed the need to create a sense of "synchronous presence" and reduce the social distance between all participants. Nipper notes that the need for social connection is a goal that almost supersedes the content-oriented goals for the course. Nipper suggests that it is important to somehow create the sense that a group is working together in real time. Many online instructors, seeking to create this sense of "working together in real time," have incorporated active learning techniques such as working collaboratively (Myers and Jones, 1993). Palloff & Pratt (1999) go as far to state that the

ability to collaborate and create knowledge and meaning communally is clear indicator that a virtual learning community has successfully coalesced.

> In the online classroom, it is the relationship and interactions among people through which knowledge is primarily generated. (Palloff & Pratt, 1999). P15

This research combined with the fact that modern learning theories indicate that there is a very important social aspect involved in one's learning process gives a profound foundation for building collaborative learning activities in online environments.

> ... ideas can be collaboratively developed as the course progresses, creating the socially constructed meaning that is the hallmark of constructivist classroom in which an active learning process is taking place. This ability to collaborate and create knowledge and meaning communally is clear indicator that a virtual learning community has successfully coalesced. (Palloff & Pratt, 1999). P 32

> Lev Vygotsky "believed that it is our need to interact and communicate in the sociocultural context that makes human cognitive development intellectual" He also believed that "all higher mental functions" develop from social interactions (Kafai & Resnick, p. 178).

Even though the social distance of the online environment calls for some type of community building and our knowledge of modern learning theories show the need for social interaction there seems to be an indication that learners themselves are entering online learning environments with reservations about collaborative learning. In addition, educational practitioners may not have a very good understanding of the dynamics of collaborative learning (Burton, Brna, & Treasure-Jones, 1997). This could result in creating problematic situations when collaborative learning activities are included in online learning environments.

Purpose of Paper

This brings us back to the original questions that this effort is attempting to shed light on: (1) Do online learners have certain profiles that would make collaborative learning a less desirable technique for them, and (2) due to our limited knowledge of the dynamics of this instructional technique are we placing the students into an environment that is too difficult and problematic for them to be successful?

As mentioned earlier, the MSLQ provides some insight as to how students feel upon enter the program regarding peer collaboration. However, it cannot provide information on students' perceptions of specific courses where they are required to interact with peers and engage in collaborative learning activities.

This paper reports on an ongoing study that surveys students who have completed a particular course in the M.Ed. in Ed. Tech. that has a heavy emphasis on collaborative learning. The study inquires about students' perceptions concerning the required collaborative learning activities. Specially, they were asked to report on their likes, difficulties, successes, and perception of their learning as it compared to other online courses.

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The collaborative learning or cooperative learning activities of the course that the survey queried focused on working together to come to a shared understanding or view. The students were assigned different roles of involvement and the roles rotated so that each member experienced all roles. The collaborative groups were designed so that in order for the students to come to this shared understanding or view required them to engage with one another using asynchronous communication systems such as, e-mail, bulletin boards, as well as synchronous chats.

Results

Questions	N	Min.	Max.	Mean	Std. Deviation
Please rank your learning experience in 567 as it compared to other online	22	1.00	5.00	3.5909	1.14056

courses that you've taken.					
Felt Successful with the Online Collaborative Learning Activities	22	1.00	5.00	2.8636	1.16682
Please rank how well you liked the collaborative learning activities in 567.	22	1.00	5.00	3.4545	1.01076
Do you think the collaborative learning activities should remain a part of 567? One = Definitely Removed. Two = Kept, but reduced significantly in number. Three = Kept with major modifications. Four = Kept with minor modifications. Five = Definitely kept intact.	22	2.00	5.00	3.3182	1.21052
If you were designing an online learning environment, would you choose to use collaborative learning activities in your design?	21	1.00	5.00	3.3333	1.15470

Table 2: Means and Standard Deviations for specific items of the Collaborative Learning Survey for ETC 567

The Student Perceived Difficulties of Online Collaborative Learning Activities

When asked to respond to the difficulties they experienced in the collaborative learning activities, the difficulty most often mentioned centered around the complexity of coordinating a synchronous time when they all could meet in the chat – especially when many were located in different time zones.

> Coordination and time are the most difficult aspects --also people who don't or can't open their email everyday--or several times a day. During the summer last year I was in a group that had people in every time zone. I was in Michigan and twice I joined a chat at 1 AM my time because 10 PM Arizona time was the only time everyone else could get together. I understand that real life is like this, but it is a pain nonetheless.

Even though students reported that they were successful in dealing with peer group dynamics, they also reported that it created difficulties.

> People that did not do their part. Difficulty in coordinating times to get together, people not showing up. Group work is great, but online has the same drawbacks as in person.

> I have a hard time with the collaborative activities. First, two of my group members didn't show up to any scheduled chats at all. Another team member and myself had to complete the assignment tasks for all four people. We were eventually put in another group. The whole thing takes a lot of time and effort. I am in different time zones than everyone else and it is difficult to schedule chat times.

Successes of the Online Collaborative Learning Activities

As Table 2 indicates, the students who responded to this survey reported a mean of 2.864 (just below the median), which would indicate that they did not feel extremely successful nor exceptionally unsuccessful in their collaborative learning experiences in this course. However, when asked to describe the successes they experienced in the collaborative learning activities 76% responded with specific examples. When their comments were examined one area of success they experienced seemed to center around mastering the technical issues, such as chat. For example this student mentioned a success in dealing with her frustrations with technical issues: "I learned to deal with my frustrations better, and I got more proficient at email and chatting!" Another mentioned, "The successes I experienced were directly related to the technology and the team work with my colleagues. Negotiating the web, learning how to chat, and understanding the processes involved in the discussion performance were valuable."

Another area where the students mentioned a feeling of success, dealt with overcoming some of the problems of group dynamics. They mentioned such issues as learning how to share with unseen and unknown individuals, leaning how to manage people, overcoming the issues of coordination of schedules and developing leadership skills. For example this student describes it best:

> Managing people by long-distance and responding to the needs of a group when you don't know the group are challenging to say the least. The first time I had to do this, the whole group crashed and burned... In subsequent classes I and everyone else felt the responsibility stronger and

performed better. I think this is an important part of the learning process and I am sure that the future for professionals in all areas will call for more work like this--long-distance group participation. So, although I hated it, I am glad I had to do it and I don't think you should drop it.

Conclusions

Data from the MSLQ suggests that students entering the M.Ed. may only slightly employ peer collaboration as part of their learning strategies. Although they reported several difficulties that hampered their collaborations, not all were related specifically to online or technology mediated collaborations. Indeed, some reported difficulties are inherent to any kind of collaborative learning activities – regardless of delivery method. Interestingly, they reported that they didn't feel successful in the online collaborative learning activities, but 76% identified and reported specific successes that they experienced. While many expressed difficulty with the group dynamic complexities and even their dislike for the collaborative learning activities, they also reported they were glad they did it and that it shouldn't be removed from the class design. Perhaps the most interesting finding is that they reported that they learned more than other online courses that they had taken.

To answer the questions; Do online learners have certain profiles that would make collaborative learning a less desirable technique for them? It would appear that students enrolled in our M.Ed. Ed. Tech. Degree program might come to online courses expecting to interact more with the faculty than with their peers. This may indicate that their expectations are built upon a more "correspondence model" of distance learning. However, the degree program is built upon a more constructivist, learner-centered model where peer collaboration is a central component. This certainly can create some misconception of expectations but it appears that over the span of the course, students became aware of the importance of peer collaboration. This brings up the second question; Due to our limited knowledge of the dynamics of this instructional technique are we placing the students into an environment that is too difficult and problematic for them to be successful? Although students reported specific difficulties, some in the area of the technology and some in the area of the group dynamics, they also reported how they overcame them. Certainly this information can be used to help us become more mindful of our students' needs as we design our online courses. Indeed, more inquiry may be helpful in determining how they would modify the collaborative activities. But most importantly, their reports tell us that they came to learn and be successful in spite of the difficulties and felt the collaborations should not be removed.

References

Burton, M., Brna, P. and Treasure-Jones, T. (1997) *Splitting the collaborative atom: How to support learning about collaboration*. (http://cbl.leeds.ac.uk/~paul/papers/aied97paper/aied97paper.html)

California Distance Learning Project (1997) *What is distance education.* (http://www.otan.dni.us/cdlp/distance.whatis.html).

Kafai, Y. & Resnick, M. (1996). *Constructionism in practice.* Mahwah, NJ: Lawrence Erlbaum Associates.

Nipper, S. (1989) *Third generation distance learning and computer conferencing*. Mindweave: (http://www-icdl.open.ac.uk/mindweave/chap5.html).

Palloff, R. M. & Pratt K. (1999). *Building learning communities in cyberspace.* San Francisco: Jossey-Bass.

Pintrich, P. R., Smith, D.A., Garcia, T. and McKeachie, W. J., (1991). *A manual for the use of the motivated strategies learning questionnaire (MSLQ).* (Tech. Rep. No. 91-B-004). Ann Arbor: University of Michigan, National Center for Research to Improve Postsecondary Teaching and Learning.

Bringing Inservice and Preservice Teachers Together In an Online Learning Community

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Abstract: One of the implications of the information age is the massive information load. To keep up with the skills and knowledge of the information age, teachers can support each other and learn collaboratively in an online learning community. In this paper, we introduce such a community in which every teacher can learn from other teachers. We introduce the ICQ active list, the Internet tool we used for creating the online learning community.

Introduction

Teachers of the information age are required to have more diverse skills and knowledge. Besides, these skills and knowledge are increasing day by day. Layman & Varian (2000) estimated that roughly 250 megabytes of unique information is produced in the world per year for every person. Teachers might be supported with various resources, services, tools, and specialized staff to close the gap in their skills and knowledge. However, a lot of inservice and preservice teachers lack this support on a timely and consistent basis. In order to address these needs, teachers can collaborate in an online learning community.

An Online Learning Community (OLC) is a community in which all of the members share control and everybody learns (Wilson & Ryder, 1996). The characteristics of the OLC are distributed control, commitment to the generation and sharing of new knowledge, flexible learning activities, autonomous community membership, and high levels of collaboration. Wilson & Ryder (1996) presented three scenarios in which learning communities could be formed. One of these scenarios used Internet discussion groups to form an OLC.

Many other Internet tools can be utilized to form an OLC. Examples are a web site, e-mail, e-mail list, threaded discussion group, chat, instant messaging, audio conferencing, and video conferencing (Harrison, 1997; Madjidi et. al., 1999; Pattison, 1999). Harrison (1997) found the problems with tools that support OLCs as finding appropriate software for members, access control to keep outsiders from disrupting communication, training members in the use of various software packages, and cost of acquisition of appropriate tools. This paper describes ICQ Active List (ICQ AL), an Internet tool which can support an OLC for inservice and preservice teachers while eliminating almost all of the problems mentioned above.

ICQ and ICQ Active List

New forms of Web tools are becoming available everyday. ICQ (I Seek You) is one of them, which is an integrated set of Internet tools. Although it first came out as an instant messaging tool with limited capabilities, users of ICQ can also chat, and send files and URL's to others. All these functions are within one easy to use client software. Version 99b of ICQ client comes with a new feature, the ICQ Active List (ICQ AL). Users can create or join ICQ communities based on a common interest and easily access them from their ICQ client software. Once users join an AL, they can broadcast messages to all of the members of the list, receive events from other list members, chat in a virtual room, post and view messages in a threaded discussion group, and e-mail each other. Users can also become an AL owner, which gives them total control over the AL. In

order to run an AL, Active List server software needs to be run. As long as the AL server software is running, the AL will be accessible by all ICQ clients.

Our Use of ICQ Active List to Bring Teachers Together in an Online Learning Community

In our learning community, we adapted the learning model identified by Wilson & Ryder (1996). This linear model has seven components which are articulating the learning need, seeking help, engaging in the help consultation, assessing the learning, sharing the solution with the OLC, archiving the solution to the problem, and the repetition of the process.

When a member of the OLC needs help, he/she may seek help in a variety of ways. The member might broadcast an instant message to other members of the OLC, who are online at that time. Or, the member can open the threaded discussion forum, and create a new thread by posting the problem. For example, one of the preservice teachers in our OLC asked for sample lesson plans for science education by sending an instant message to the group and by posting a message in the threaded discussion group.

After the problem is stated, OLC members may help to the member who has a problem. Helping might be implemented in a variety of ways, like giving instruction in the chat room, sending an instant message to the member, sending a Web address (URL) that will explain a solution to the problem, posting a solution to the threaded discussion group, or sending a document. In our example, one of the OLC members sent a lesson plan in the word processing format to the member in need of help. Another member posted a message in the threaded discussion group, which contained web addresses for sample lesson plans.

At the assessment stage, the member who asked for help evaluates the solutions offered through different channels. If these solutions are not enough or complete, he/she can seek for help again. In our case, the preservice teacher was satisfied with the lesson plan sent to him by another member; however he indicated that the Web addresses posted in the threaded discussion group didn't contain lesson plans for science education.

When a solution to a problem is found, this solution might be shared with other OLC members. Threaded discussion group is a convenient place for sharing the solution with the OLC, since every posted message stays there as long as it is not deleted by the administrator of the AL. In our example, the preservice teacher posted a message in the threaded discussion group, explaining how he found solution to his problem.

Interactions in the OLC should be archived for future reference. Current or future members of the OLC might seek help for a problem that was already solved in the past. In such cases, the archive of the OLC might serve as an EPSS (Electronic Performance Support System) or as an FAQ (Frequently Asked Questions). In our OLC, we created a thread in the threaded discussion group called 'Solutions to past problems'. There are also sub-threads under this general thread for such domains as 'Science', 'Computers', "Mathematics", and etc. Such a categorization allows members to browse the solutions easily in a timely manner.

Conclusions

With the help of ICQ active list, an Internet tool, we have created an online learning community for teachers, in which every member can learn from each other. We have observed that such a learning community can be utilized by teachers successfully to close the gaps in their skills and knowledge. Since this is an ongoing research, our future research agenda includes nurturing the learning community, fostering communication in the learning community, and examining interactions in the learning community.

References

Harrison, B., Jr. (1997). Hardware/Software to Support Distance Learning Classes. *Mid-South Instructional Technology Conference, 1997*, Murfreesboro, TN.

Layman, P., & Varian, H. R. (2000). How Big Is the Information Explosion? *The Magazine on Information Impacts*. November 2000. Online at: [http://www.cisp.org/imp/november_2000/11_00lyman.htm].

Madjidi, F., Hughes, H. W., Johnson, R. N., & Cary, K. (1999). Virtual Learning Environments. ERIC Accession Number: Ed429565.

Pattison, S. (1999). How Information Technology Is Changing Education. Literature Review: Societal Factors Affecting Education. ERIC Accession Number: Ed437894.

Wilson, B., & Ryder, M. (1996). Dynamic Learning Communities: An Alternative to Designed Instructional Systems. *National Convention of the Association for Educational Communications and Technology, 1997*, AECT, Indianapolis, IN.

A Technology Based School/University Partnership

Peter West, Northern Illinois University, US
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This presentation will describe an initiative designed to better prepare teachers for the rapidly changing demands that technological and sociological changes are imposing on how they teach and how students learn. It goes without saying that few technologies have grown as eposively as telecommunications overt ythe last decade. By simply connecting a computer to a phone line, anyone can access untold worlds of information. One of the biggest challenges facing educatino today is harnessing the tremendous opportunities created by those advancements and putting them to work in the classroom.

This session will describe this program and outline how a partnership between schools, universities and businesses have been working together to create solutions to technology integration.

Nuts and Bolts: Authentic Educational Web Project Development

Harrison Yang, State University of New York at Oswego, US

World Wide Web is a rich learning environment that can be used for designing direct instruction, learner oriented learning activity, and professional development. To design any kind of educational Web project, it is necessary to understand how teachers' experience and the insights of researchers can be linked together. This paper synthesizes both action and reflection of pre- and in-service teachers' ideas on four different kinds of educational Web projects: Internet educational resource book, inquire-based learning activity, class Web, and Web-based portfolio. Descriptions of distinctive characteristics, benefits, and challenges on each education Web projects are included.

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